GOVERNMENT OF MADRAS

REPORT OF THE COMMITTEE ON LEATHER AND LEATHER GOODS

ASST. SECRETARY TO GOVERNMENT
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DEVELOPMENT DEPARTMENT

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REPORT OF THE COMMITTEE ON LEATHER AND LEATHER GOODS.

CHAPTER I.

INTRODUCTION.

The Ad-Hoc Committee on Leather and Leather Goods was appointed as per G.O. Ms. No. 2775, dated 23rd December 1946, of Public Department to examine and report on the Development of the Leather Industry of the Province.

2. The following members were appointed as per G.Os. Ms. No. 2775, Public (P. & D.), dated 23rd December 1946, Ms. No. 454, Public (P. & D.), dated 10th February 1947, and Ms. No. 2140, Public (P. & D.), dated 12th July 1947 :—

Non-officials.

Mr. M. Mahomed Ismail, B.A., M.L.A. (*Chairman*).
Sri M. Balasundaram Naidu, C.I.E.
M. Nazir Hussain Sahib Bahadur.
Sri N. T. Subramania Mudaliar.
Jallal Mohamed Ibrahim Sahib Bahadur.
Sri G. S. Srinivasa Iyer.
Mr. M. K. S. Mohideen, B.A., B.L.
Mr. Y. R. Gaitonde.
Mr. P. S. T. Rao.
Janab C. Fakir Mohamed Sahib.
Mr. Fazl Karim.
Mr. T. Abdul Wahid, B.A., B.L.
Mr. C. Mahomed Ismail.
Sri A. Rayappa, M.L.A.

Officials.

The Chief Conservator of Forests.
The Director of Industries and Commerce.
The Livestock Development Officer.
The Forest Utilization Officer.
Sri K. Seshachalam Choudary, Principal, Institute of Leather Technology (*Secretary*).

3. The following terms of reference were suggested by the Director of Industries and Commerce at the first meeting of the Leather Committee on 1st March 1947 :—

(i) Collection of statistics regarding the leather industry in the Province—

(*a*) Number, size, location, etc., of the different tanneries in the Presidency.

(b) Quantity of the barks and chemicals, etc., used in the tanneries, their source of supply, cost, etc.

(c) Number, size, location, etc., of leather goods manufacturing units.

(d) Variety and quantity of leathers used in the leather goods manufacture.

(ii) Means and methods of effecting improvement in flaying, curing and preservation of hides and skins—Starting of curing centres in important areas in the Presidency.

(iii) Survey and systematic study of South Indian tanning materials; means and methods of increasing supplies; improving quality and reducing cost; preparation of extracts from the indigenous tanning materials.

(iv) Systematic and scientific study of the South Indian tannage with particular reference to the popularity of the East Indian tanned kips among curers in the United Kingdom and the United States of America; ways and means of effecting improvement in marketing methods.

(v) Study of the development of the dressing and finishing of East Indian tanned kips and skins.

(vi) Development of the manufacture of sole leathers and other classes of leathers.

(vii) Development of the manufacture of shoes and other footwear articles and fancy leather goods with the help of machinery.

(viii) Study of the possibility of the local manufacture of the machinery required for the leather tanning and shoe and fancy leather goods industry.

(ix) The need and desirability of sending a delegation of tanners and exporters abroad to study trade, technical and technological conditions bearing on the leather industry with special reference to the study of the possibility of expansion of trade relations and the opening up of new markets in foreign countries and the latest method of tanning and of leather goods manufacture now in vogue in foreign countries.

(x) Utilization of the by-products of the tanneries.

(xi) Training of leather technicians and technologists at different levels; survey of present conditions and recommendations as regards future needs.

(xii) *Cottage leather industry.*—To study the various methods used by village tanners at present in leather tanning and leather goods manufacture. Introduction of improved methods through peripatetic tanning demonstrations; introduction of hand-worked machinery in tanning and leather goods manufacture; possibility of preparing pickled hides in important centres for despatch to tanners—Other measures to improve the economic condition and ensure progress of village leather industry.

4. The Committee was divided into the following Sub-Committees :—

Raw Hides and Skins Sub-Committee.

Tanning Materials Sub-Committee.

Dressing and Finishing of Leathers Sub-Committee.

Technical Education and Research Sub-Committee.

Steering Sub-Committee.

The resolutions of these several sub-committees were placed before the general committee for discussion. In the final stages each sub-committee prepared a report. All the reports of the sub-committees were passed by the steering committee. The final report as approved by the steering committee was placed before the general committee and approved therein. There was a Special Officer, clerk-typist and stenographer sanctioned for the Committee. But there was no stenographer appointed for more than a few weeks. The Special Officer was appointed for the special purpose of collecting statistics and to assist the Secretary in the work of the Committee. The different sub-committees met 18 times and the general committee nine times.

5. Important hide and skin tanning centres were visited by the Secretary and Special Officer with the object of obtaining first-hand technical details and statistics. The centres were Vizianagaram, Vijayavada, Ranipet, Vaniyambadi, Tiruchirappalli, Dindugul and Eluru. In this connexion, the Committee regrets that it could not, as it was not provided with the means, to tour the various centres producing leather and raw and tanning materials, to get into personal touch with the conditions obtaining in various places, to have discussions with people concerned in the trade and to study problems and difficulties on the spot where they are present.

6. The Committee did not take up the question of sending of a Tanners and Exporters Delegation abroad, as the Government of India had appointed in September 1947 a South Indian Leather Trade Delegation for touring the United Kingdom, the United States of America and certain other countries. The members of the Committee felt that the trade and industry could be benefited by the work and experience of this delegation and the question of sending any other delegation could be taken up later by the trade with the Government at any time in the future if it was considered desirable. The abovesaid delegation has submitted its report to the Central Government. Three of the members of this Committee went as members of the said South Indian Leather Trade Delegation. The Leader of the Delegation (Mr. M. Jamal Mohideen) was specially requested after his return to attend a meeting of the Committee, although he was not in it, and give the Committee the benefit of the views of his delegation. The views he expressed were fully discussed in the meeting of the general committee.

7. The collection and assemblage of statistics has naturally taken much time and labour. Yet the statistics and informations collected cannot be considered to be as complete as it could be desired in spite of the best efforts put forward by the staff of the Committee. This was due among other things, to the non-responsiveness of the members of the trade scattered over the Province, to their non-understanding of the purpose of the Committee, to the lack of adequate means at the disposal of the Committee and to the inability of the Committee not being able to get into personal contact with various centres and people as was originally intended. However, the Committee feels sure that ample materials and suggestions are hereby placed before the Government and the industry for enabling them to understand the present condition of the industry and to take steps to improve the same.

CHAPTER II.

RAW HIDES AND SKINS—RESOURCES.

8. Hides and skins are the primary raw materials of the leather and leather goods industries and they are mainly derived from buffaloes, cows, goats and sheep. India stands prominently among the countries of the world in production of hides and skins. The production of hides and skins amounts to 18·8 per cent and 18·9 per cent respectively of the world's production. (*Annexure* I) India before partition, had the largest number of cattle in the world —about 1,800 lakhs of cows and oxen, 500 lakhs buffaloes and 460 lakhs sheep. Five hundred and eighty lakhs of goats and 120 lakhs of other animals and their estimated production, which comprised 200 lakhs cow hides, 57 lakhs buffalo hides, 275 lakhs goat skins and 170 lakhs sheep skins ranked the highest in the world. As a result of partition, however, approximately one-sixth of the total bovine population and one-eighth of the total number of goats and sheep now belong to Pakistan[1].

9. The population of the different animals in the Presidency in 1935 according to the Agricultural Marketing Reports[2] are give below :—

TABLE I.

	LAKHS.	Percentage on Indian population.
Kips	177·9	21·7
Buff	54·3	27·8
Sheep	118·8	33·6
Goat	67·3	29·6

[1] Shoe and Leather Reporter: Volume 251, No. 2, 10th July 1948, page 13.

[2] Agricultural Marketing Report of Hides and Skins in India and Burma, 1943.

The annual production of kips, buffs, sheep and goat skins according to the same reports is given below :—

TABLE II.

	Production.	Percentage of Indian production.
Kips	38·6	19·3
Buffs	15·1	26·4
Goat	19·9	7·2
Sheep	39·9	23·4

10. The latest statement showing the livestock in each district in Madras Presidency as ascertained by census held in December 1944[1] is shown in *Annexure* 2. The number of slaughter-houses in the Presidency and the number of the different animals slaughtered in the Presidency [1] are shown below :—

TABLE III.—*Slaughter-houses in the Presidency.*

Year.	Number of slaughter-houses for: Cattle and buffaloe. Govern-ment.	Cattle and buffaloe. Local bodies.	Sheep and Goats. Govern-ment.	Sheep and Goats. Local bodies.	Number of un-licensed slaughter-houses.
1946–47	1	77	1	344	25
1945–46	1	99	1	344	26
1944–45	1	88	3	334	16

TABLE IV.—*Number of animals slaughtered.*

Year.	Cows.	Bulls and bullocks.	Calves.	Buffaloes.	Sheep.	Goats.
1946–47 ..	41,109	72,526	594	45,8[illegible]4	1,648,482	998,641
1945–46 ..	47,268	72,184	781	57,404	1,8[illegible]9,828	995,798
1944–45 ..	40,502	49,308	908	36,701	1,780,477	916,959

The number of animals slaughtered in the municipal slaughter-houses in the Presidency for ten years, up to 1947–48[2], the variation of the slaughter of animals in a few of the big municipalities and the monthly slaughter of sheep and goat in the City of Madras for the two years 1946–48 are shown in *Annexures* 3, 4 and 5.

11. A note[1] on some of the diseases of the animals that affect the skins are given in *Annexure* 7.

[1] Information supplied by the Livestock Development Officer, Madras.

[2] Information obtained from the municipalities.

The cattle mortality in the Presidency due to different diseases from the years 1935–36 to 1947–48 [1,2] is shown below :—

CATTLE MORTALITY.

	1935–36.	1936–37.	1937–38.	1938–39.	1939–40.	1940–41.	1941–42.
Rinderpest ..	2,752	5,102	7,983	8,648	13,270	17,858	14,001
Anthrax ..	2,383	3,339	3,282	2,107	3,239	3,324	2,379
Haemorrhagic septicaemia ..	5,664	6,353	5,670	3,801	4,503	4,938	5,248
Foot and mouth.	976	2,965	2,358	610	1,055	1,193	1,021
Black quarter ..	5,857	7,929	11,189	9,554	4,630	4,688	3,694
Others	5,582	7,511	12,196	34,083	19,635	23,383	14,778
Total ..	23,214	33,199	42,678	58,803	46,332	55,384	41,126

	1942–43.	1943–44.	1944–45.	1945–46.	1946–47.	1947–48.
Rinderpest ..	13,033	43,836	29,084	14,725	6,760	1,695
Anthrax ..	2,556	3,375	2,151	1,031	1,156	1,356
Haemorrhogic septicaemia ..	4,191	5,898	8,931	7,887	9,417	9,387
Foot and mouth.	1,065	809	433	96	388	62
Black quarter ..	6,539	5,212	4,019	10,293	11,847	15,623
Others	25,041	17,150	10,185	..	..	..
Total ..	52,425	76,280	54,803	34,032	29,568	28,133

12. The Madras buffs are mostly light and the bulk of these are lightly tanned along with cow hides in South Indian tanning and exported along with East India tanned kips. The sheep skins of Madras especially the hair-sheep skins are the best in texture producing the tight and fine grained leather. The defects in hides and skins are due principally to the generally inferior breeds of livestock; malnutrition of the animals in many cases; maltreatments of animals, branding and striking with sharply pointed goading sticks and animal diseases. The above defects have been causing an enormous animal loss to the Province and educative propaganda to avoid these defects has to be done more intensively. The defects are also responsible for the difficulty of the Indian tanning and leather industries in improving the standards of the quality of their products. The most important of these defects causing great damage is the infestation of cattle with warbles and ticks. Research work on these has been carried on at the Imperial Veterinary Research Institute at Mukteswar. Arrangement must be made by the Veterinary department to apply these researches on a large scale, throughout the Presidency to save the livestock from these damaging pests and the hide and skin wealth of the Province from considerable loss.

[1] Rural Problems in Madras: Monograph: S. Y. Krishna Swami, 1947.

[2] Information supplied by the Director of Animal Husbandry, Madras.

CHAPTER III.

FLAYING.

13. As soon as animals are slaughtered or dead the covering of the animal has to be removed off its body which process is known as flaying. The dead animals in the villages are usually dragged on the ground for long distances before flaying. This certainly damages the hides. The flaying done in the villages is not as good as done in slaughter-house. Even in slaughter-house the method of flaying requires to be improved. The number of slaughter-houses in the Presidency has been given in paragraph 10. In the slaughter-houses the animals are inspected by the Veterinary Officer before they are slaughtered so as to prevent the diseased animals from being slaughtered. The animals are purchased and flayed by the butchers themselves who are not employees of the Corporation or municipalities. The Superintendent of the slaughter-house usually guides such of those flayers whose work is not found to be satisfactory. The hides after flaying are washed with water under the tap and disposed off to the dealer. Representatives from the various tanneries go to the slaughter-house and purchase the hides and skins. The hides and skins are not allowed to be kept in the slaughter-house for more than three hours for any reason. No curing is applied in the slaughter-house. The slaughter-house is airy and well ventilated. There is plentiful water-supply from the taps.

14. The methods of flaying adopted leave much to be desired. The value of hides and skins depends to a large extent upon the care exercised in removing them from the carcass and also upon the care taken thereafter, to keep them sound and in a thorough state of preservation. The faults of workmanship which depreciate the value of the hide to the tanner are imperfect or irregular shape, cuts, knife cuts and scores while flaying and neglect to properly care for the hide as soon as it has been removed from the carcass. According to the Agricultural Marketing Reports[1] the loss caused to the Province by faulty flaying amounts to about Rs. 25 lakhs annually. It might be interesting to note that the annual loss to the butchers in England caused by bad flaying and careless preservation of hides is at least £500,000[2] but this need not console us. Attempts have been made to improve the flaying in the country. Flaying demonstration parties have been conducted under the auspices of the Indian Agricultural Research Council, to show the proper method of flaying. Premium was paid to the flayer for well flayed hide. But the results do not appear to have been encouraging. It was therefore decided that improvement could be effected

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[1] Agricultural Marketing Report of Hides and Skins in India and Burma, 1943.

[2] The flaying of hides and skins and their preservation issued by the Hide, Leather and Allied Trades Improvement Society, Liverpool.

by permitting the flaying to be carried on only by licensed flayers and that this should first be started in slaughter-houses in municipalities and panchayat boards.

15. Flaying in municipal slaughter-houses of these flayers should be confined only to those flayers who have been granted licences after having been declared efficient in flaying. A mere registration of the flayers in slaughter-houses as is said to be done in slaughter-house at Bandra, Bombay, to avoid congestion is not sufficient. These licences may be issued after a test of efficiency on the lines of the motor driver licence issued by the Police authorities. A nominal fee may be levied. A small flaying school should be started and an efficient flayer of the Presidency might be selected for giving practical demonstration and training in flaying. A master flayer might perhaps be obtained from the Military authorities who were in charge of the dehydration factories in the country during the war. In the first instance, the master flayer will train a few Veterinary Inspectors and Sanitary Inspectors of the municipalities in the correct method of flaying. During this period a short instruction on the anatomy of the skin and its bearing on leather manufacture might be given by a member of the staff of the Institute of Leather Technology. These can then be deputed to different centres in the Presidency to scrutinize the degree of efficiency in flaying in the slaughter-houses and to recommend the issue of licences only to such of those whom they consider to be up to the mark in their work. These trained personnel should also demonstrate the art of proper flaying to the people concerned in the various centres. It is suggested that this training and demonstration may initially be held in the Corporation slaughter-house in the City. The working of the scheme in the mufassal might be entrusted to the District Veterinary Officer. This will gradually lead on to a sort of standardization of flaying. The grant of the licences can be left to the municipalities to be based entirely on the recommendations of the Inspectors. It is recommended that a workable scheme on the lines indicated above for the improvement of flaying in the slaughter-house in the municipalities and panchayats throughout the Presidency be formulated by the Government and put in action early for the benefit of the tanning industry.

CHAPTER IV.

CURING AND PRESERVATION.

16. Hides and skins soon after they are flayed are cured or preserved so as to reach the tannery in proper condition. It is stated that the methods followed in India are slightly different from those found in some other Asian countries. The process of curing has been in existence in this country from very early times. Yet, it cannot be said that the methods followed are certainly the best. The type of cure depends upon the quality of the hide, climate, the materials used for curing, the length of time for

which the cure is required and the requirements of the local tanner or of the shipper for meeting the demands of the overseas markets, etc. It is not necessary to go into the details of the different methods of curing and preservation followed in the Presidency. The several methods followed, though correct in principle, are capable of further improvement in the light of modern knowledge on the subject. There are also several defects in the *modus operandi* of the methods which deteriorate the quality of the preserved hides and skins. Every tanner is aware that the quality of the finished leather depends primarily on the quality of the hide and skin as it enters the tannery, i.e., upon the method and degree of preservation. Any amount of technical knowledge or skill cannot help in the production of a good quality leather from out of an ill-cured hide or skin. It cannot therefore be over-emphasised that the modes and methods of preservation of skins should be improved, if not made perfect.

17. It may not be out of place to explain a few of the defects and their effect on the preserved raw hide and thus on the quality of the final leather prepared in the light of information on the subject. Though the application of salt to a hide rather appears to be simple it has been shown that a number of conditions retard the diffusion of salt into the hide. Delayed or improper salting has to be guarded against. It has been shown that a delay of six hours in curing causes only 26 per cent of the salt to be absorbed as against 100 per cent if the curing had been done immediately.[1] There should be no inordinate delay in the application of salt. In the case of fallen hides and skins in the villages it is very rare that the curing is not delayed. A delay of a few hours in curing will cause damage to the hide. It has also been shown that when adipose tissue is not removed, the entry of salt into the hide is greatly impeded. Another condition is the presence of blood. The hide with blood on will absorb only about 60 per cent of what it would, if the blood had been removed by careful waching.[1] Also the action of a salt solution in stopping the bacterial action is less in the presence of blood, as the blood also serves as food for the bacteria to grow. The need of cleaning the hide or skin free from blood is therefore apparent. Greater attention has to be paid to this point. The presence of other impurities in the salt also affects its preserving action. Another defect is that in several instances the salt scraped from salted skins is used for further stocks. The used salt is not as effective as fresh salt in stopping the bacterial de-composition because of the presence of dirt, blood and other matter which supply food for the bacteria to grow. The price of salt issued for curing was at one time cheaper than the edible salt. This might perhaps have given rise to the malpractice. It might be said that with the present abolition of salt duty, there might not be any chance

[1] The Chemistry of Leather Manufacture: McLaughlin and Theis.

of this malpractice creeping in. Anyhow, care should be taken that only fresh salt is used in salting. It is stated by Sri A. Rayappa, one of the members of the Committee, that in his experiences as a tanner, the skins and hides cured and preserved with rock salt instead of sea salt have been found deficient in the matter of yield of leather and also subject to some defects. This question has to be gone into and the tanners and curers advised of the same. Attempts should be made to evolve more efficient methods of salting and at getting these methods followed to as large an extent as possible. Hide and skin curing yards might be opened for the purpose of efficient salting just as in the case of fish-curing yards more especially in the case of the fallen hides and skins that come from villages throughout the Presidency. It is recommended that five curing yards might first be opened in the important centres, where the best methods of salting may be demonstrated and where these hides and skins are salted by these methods. From the experience gained on working these for a short period the question of opening up other centres might be considered. The success of the scheme depends upon the co-operation and help rendered by tanners and by raw hide curing and salting agents. Inspection of these centres should be in charge of one who is conversant with the technology and technique of preservation.

18. In the drying process, especially in the sun, the temperature is not uniform throughout the day; and when precautions not to dry it at very high temperatures are not taken the outer layers of the skin might dry up leaving the interior portion undried which will lead to the deterioration of the quality of the hides and skins and to cause trouble to the tanner in his use of them. Even if this precaution is taken there is always the possibility of not having uniform drying throughout the skin. Preliminary experiments were conducted by the Department of Industries and Commerce to see if drying of skins could not be carried on at controlled temperatures. The drying was carried on in the barns used for the flue curing of tobacco in the Andhra districts. A few skins were dried in these barns and a few were dried in the sun as usual. These skins were then stored for more than six months and then processed in the tannery. During processing the easiness of soaking and the weight of the soaked skins or the degree of hydration were determined. It was found that, those dried in the barn, were dried more uniformly and had absorbed water more than those dried in the sun. There was evidence of very little hydrolysis in both the cases. The method of barn drying is found to be suitable. It may be used throughout the year, even during the rainy season, when they cannot be dried in the sun or shade quick enough to prevent at least partial decomposition. The economics of this method of drying in the barn could not be correctly determined, since the number of skins dried at one time were not more than six in a barn which could hold

about five hundred. It is recommended that these experiments should be continued on a larger scale along with tanning trials and the results be made available to the curers and the tanners at an early date.

19. There is another method of curing—brining and salting. It has been shown that if the hides are allowed to remain in saturated brine and then salted, it is found that the preservation is better done; and that these hides are found to produce more and better leather than the hides merely salted and were thicker and finer. This method is being practised in Argentina for curing heavy hides. These are known as Frigorificos in America. The method followed in Frigorifico Establishments in Argentina is described below.[1] The animal is thoroughly washed before slaughter to remove the bulk of the surface filth. The flayed hide is again washed both flesh and hair sides and the flesh side is then brushed vigorously and the surplus flesh is removed. The washed hide is brined and is then placed in a cool saturated salt brine for 24 to 48 hours with occasional stirring. The hide is then removed from the brine and drained, after which they are salted. The possibility of introducing this method of curing may be studied. In the matter of dry curing the possibility of dipping the hides and skins in solutions of chemicals to arrest putrefaction before drying may be explored. This has been found to yield good results in East Africa. In short the methods that are being used as a result of modern investigations, in the several tropical countries for curing hides and skins should be studied and these, should be repeated along with alterations and suitable methods, with reference to simplicity of manipulation in the villages and comparative costs of such methods should be worked out. This problem may well be taken up as an all-India question. The possibilities of adoption of the curing by pickling and curing by the accel process in the country may also be examined with advantage.

CHAPTER V.

SOUTH INDIAN TANNED LEATHER FOR EXPORT.

20. The time when the export of South Indian tanned leathers from this Presidency started cannot be accurately determined. We hear of the export of tanned hides and skins from this country even from the middle of the nineteenth century. Beginning from the crude, rough oily and fleshy tannage it has developed into the present fine, clean and bright tanned leathers that are in good demand in various parts of the world. The bulk of the leathers that are being exported from India go from this Province and this forms therefore one of the most important export trade of the Province. The South Indian tanned leathers have received the approbation, if not the admiration, of the tanners throughout

[1] Stuart and Grey : Journal of the American Leather Chemists Association – XXV, 414 (1930).

the world. It is also interesting to note that with the same tanning materials the same kinds of leathers could not be produced in other provinces of India. The skill of the Madras tanner has thus earned world renown. Attempts are however being made to produce these leathers in other provinces.

PRODUCTION OF EAST INDIA TANNED LEATHERS IN OTHER PROVINCES.

21. The recommendations of the Government of India Panel on Leather regarding the expansion of the East Indian kip tanning industry in other parts of India besides the Madras Presidency are: "There is scope for the manufacture of East India tanned leather in Bengal, Assam, Orissa and Central Province where suitable hides and skins are available. Rajputana produces large quantities of goat and sheep skins and it has also avaram bark. There is thus a prospect for developing the manufacture of East India tanned goat and sheep skins for export. Tanneries for the production of this leather should be started in suitable regions in the Rajputana States, e.g., Jaipur. In Bombay, Sind and Kathiawar also East India kip and skin tanning can be substantially increased. In Kathiawar specially the production of East India tanned goat and sheep skins can be considerably expanded because suitable skins as well as avaram bark are available and being near the ports of the West Coast there is facility for exporting them. Of the increase of 40 per cent over pre-war production of East India tanned goat and sheep skins, a substantial share should go to Kathiawar. . . . Large quantities of the Punjab goat and sheep skins are at present sent to Madras for East India tanning which should be done in the Punjab itself. Similarly Bengal sends large quantities of kips and rejection goat skins to Madras for tanning which might as well be done in Bengal. Most of the Bengal hides sent to Madras are from the Eastern and Northern Bengal from places like Dacca, . . ., etc. These are suitable places for producing East India tanned kips, because plentiful supply of good soft water is available. Wattle bark can be imported and labour can be suitably trained in these new areas . . . In recommending the expansion of the East Indian kip tanning in other parts of India besides the Madras Presidency, the Panel does not contemplate that this expansion should necessarily be at the cost of Madras[1].

EAST INDIA TANNED HIDE TRADE [2].

22. The history and progress of the Madras East Indian tanned kip industry is very interesting. Taking the export of the tanned hides from the early years of the twentieth century, one would find that till the first world war (1914–18) the export of

[1] Report of the Panel on Leather and Leather Goods: Government of India, 1947.

[2] Note written by Mr. Y. R. Gaitonde.

East Indian tanned kips from Madras gradually showed an increase from 80,000 to 200,000 per month. During that period Madras mostly used raw hides that were produced in this Presidency which amounted to 90,000 to 100,000 hides per month. These raw hides were mostly wet salted and hence gave better measurement for tanning than the dry salted ones from Bengal which were tanned lengthwise. They were using a mixture of avaram and konnam barks which gave better colour and no false weight. They were liked very much by curriers in London and other continental countries for their mellowness and good finish. When the first war broke out, the British Government required more tanned hides for the supply of boots and other military purposes. With this increased and acute demand the production in Madras and Bombay Presidencies increased from 1 lakh to 4 lakhs per month. With the increase in production the indigenous tanning materials like avaram and konnam bark were not sufficient to meet the demand of the tanners and hence during the first World War wattle bark was imported from South Africa and thus the tanners were eventually able to considerably increase the production of leathers. Though the London curriers favoured hides tanned with avaram bark, they had to reconcile themselves in course of time to hides tanned with wattle bark as the latter helped to meet their increased demand. This almost exclusive use of wattle bark for the tanning of hides had left the indigenous tanning materials such as avaram bark for the exclusive use of the skin tanning industry. The consumption of East Indian tanned kips in the United Kingdom developed so rapidly that the average monthly shipments from Madras which amounted to two to three thousand bales per month in the years before the first World War increased to nearly 5,000 bales per month by 1936. In earlier days, the hides were sent for public auctions in Mincing Lane, London. But in later years both the consumers in the United Kingdom and shippers from Madras found it convenient and beneficial to all concerned to operate on C.I.F. basis. Till about the year 1935–36, business was mostly done in run parcels and excess 4th and 5ths; but with the increase of consumption in the United Kingdom the demand for cheaper grades developed. As a consequence Indian tanners were encouraged to concentrate more on lower grades which resulted in the increased production of inferior selections. The present day production is decidedly better than what was produced before 1914. In former times, kips were plastered with a white substance, which was intended to conceal cuts on the flesh side and incidently added to the weight. This practice of adulteration no longer continues and the curriers enjoy the advantages of clean hides in every parcel. The increasing concentration on inferior grades has been contributed to by the development of chrome leather industry in this country itself. Again the United Kingdom consumers have been constantly pressing down the prices and the Madras tanners were, therefore,

forced to go in for adequately cheaper raw hides such as those rejected by the Indian Chrome tanners. It is evident, therefore, that unless the consumers in the United Kingdom are prepared to pay fair and proper prices for enabling the Madras tanner to use better class of raw hides, he is left with no other alternative than continuing in his present policy.

23. The export of tanned hides (including calf skins) to the United Kingdom during 1931 and 1932 were round about 3,000 bales per month; in 1933, 1934 and 1935, 3,500 bales; in 1936, 5,000 bales; in 1937, 5,500 bales; in 1938, 4,000 bales; in 1939 and 1940, 7,000 bales; in 1941, 4,000 bales; in 1942, 3,700 bales. But from 1943 this export quantity began to dwindle; from 2,300 bales in 1943 it came down to 1,200 bales per month in 1945. During the peak period of production, round about 9 lakhs of raw hides and calf skins were used by Madras tanners in about 400 tanneries and these comprised of 2-lakh pieces from Dacca, 3-lakh pieces from Calcutta, 2 lakh-pieces from Cawnpore and 2-lakh pieces from Madras and the surrounding provinces. As the supply of wattle bark was easily available from South Africa in large quantities, and as the curriers in the United Kingdom accepted hides tanned with wattle bark, Madras tanners concentrated on the use of wattle bark, with the result that about 2,000 tons of wattle bark came to be used by Madras tanners per month. However since owing to the recent embargo placed by our Government in the import of wattle bark from South Africa, the Madras tanners have been very much handicapped in the matter of tanning materials. The Madras tanners have as a result had to depend almost solely on a quantity of about 500 tons of wattle bark and about 250 tons of wattle extract imported from East Africa. At such a time a decent quantity of soluble Quebracho Extract that was available from Argentina, became very handy. The short sighted policy of the United Kingdom in not realizing the difficulties of Madras tanners and in pegging down the prices to uneconomic level has very largely brought about the extremely short supply of East Indian tanned hides since 1943. There are also other contributory causes for this low production. In pre-war days about one to two weeks time was sufficient for transporting raw hides from raw hide centres, to the tanneries in Madras. But today it takes anything from two to six months for raw hides to reach the tanneries from purchasing centres. Till about two years ago tanneries were exempt from the operation of the Factory Act. Since then, they have been brought under the said Act. This was followed by a large number of labour disputes which interfered with the regular production of the tanneries. A wagon load of raw hides (i.e., 3,000 pieces) cost in pre-war years, Rs. 6,000. Today it costs about Rs. 25,000. In pre-war days 20 per cent of the cost was paid in advance to the raw hide dealer and the balance was collected against railway receipt. Today a tanner has to send the whole amount (i.e., Rs. 25,000) in advance

for the purchase of raw hides and has in many cases to wait nearly four to six months for getting the goods to his tannery.

24. East Indian tanned kips are usually marketed at present under the following categories: Prime Bangalore tanned cow hides; best Bangalore tanned cow hides; pure Cocanada tanned cow hides; though in pre-war years the classification consisted of a larger number of categories such as Prime Bangalores, best Bangalores, pure Cocanadas, Coasts, Madras A-1, Mutwadas, etc. These classifications are based on the nature of the raw hides used, and the colour, substance, texture of the leather, etc. These are again graded into selections, such as 2nds, 3rds, 4ths, 5ths and inferior 5ths according to, quality of tannage, colour, nature of texture, defects on grain and flesh, the nature of substance of the hides, etc. As mentioned earlier, the hides were previously sent after classification and grading to auction sales in London. Later on during the first World War the Government bought them in India at prices fixed by themselves and had them sorted and graded by their own Inspectors and officers at their own godowns. In the post-war period direct order business on the C.I.F. basis rapidly developed. According to this basis the sale was made directly by the Indian seller to the overseas buyer. If any dispute arose, the claims were settled by negotiation between the exporter and the importer and if no amicable settlement could be reached, the shipment was placed before arbitrators. Till 1939 prices fluctuated according to demand and supply; but just after the war began the Board of Trade in London fixed prices for different averages and quotas were fixed for each importer in the United Kingdom according to import averages calculated over a certain period before the war. Certain increments were given in subsequent periods after negotiation between the controller and the trade in Madras in consultation with the Government of India. But owing to uneconomic prices, exporters could not supply the goods in recognized classifications and grades. The result was that the United Kingdom Government in consultation with Government of India appointed their own staff to purchase at certain fixed prices, which were periodically revised. At first the goods were bought at the same rates irrespective of quantities supplied. Later, in August 1945, the bonus system was introduced, in order to give incentive for tanners to produce larger quantities. During this period goods were delivered at the His Majesty's Government godown in Madras. If the goods were up to the standard they were passed and the shippers were able to discount their invoices through their bankers. If rejected, the shippers had to take them back, re-pack and re-submit them for passing. This system continued till the end of February 1948 when His Majesty's Government's purchases ceased. Subsequently hides began to be sold by the exporters in Madras directly on C.I.F. basis to the Board of Trade in the United Kingdom through the recognized importers in that country. The goods thus shipped are

inspected, after arrival in the United Kingdom ports, by the Inspectors appointed by the United Kingdom Controller. If the shipment is found to be below His Majesty's Government's standard, which was in force for their previous purchases in Madras, claims are made and the exporters in Madras are given an alternative either to accept the claims or submit them for arbitration. This system is not wholly beneficial to the exporters in Madras, as they are solely at the mercy of the Inspector's decisions in the United Kingdom. There has been great discontent on this account; however, there is no alternative other than submitting to this procedure, as the United Kingdom Board of Trades has constituted itself the principal buyer of East Indian tanned kips. If the other countries are properly encouraged to enter this business directly with Madras, the position of the Madras tanning industry will definitely improve.

EAST INDIA TANNED SKIN TRADE.

25. Skins also were tanned and used in this country from time immemorial. At the beginning, tanned skins also were as crude, oily, and fleshy as tanned hides. In course of time, this began to improve and we have got to-day the clean, mellow and bright tannage that is being appreciated by consumers in many countries. The tanned skins have been at the beginning as they are now, in many cases, the product of small tanneries. They could not be packed in different weights, grades and qualities according to the requirements of the buyers, each buyer being interested in a particular quality, grade or weight. But a small tanner, his production being small, could not sort out his goods into his varieties and denominations, and himself sell to the buyers direct. Mainly for overcoming this difficulty, the tanned skins from this Province were being shipped to the London public auctions on what is known as consignment basis. The brokers in London sort the goods and offer them in the public sale where the buyers would purchase the particular grades and qualities they required. On the completion of the sale, the consignor in Madras would receive the sale-proceeds after deducting the advances they usually receive at the time of shipment. Though these auction sales had their advantages, they were not without drawbacks. A tanner who sent his goods to the auction would have to wait for getting back his money for four—six months from the time the goods leaves his tannery. The waiting would have to be for six to eight months if we take the purchase of raw skins as the starting point. All these months the tanner would be in the dark with regard to the result of his tanning operations. Moreover, he could not, of course, have any control over the operations and transactions in the London public auction. As a result, the tanners began to think of other ways for the disposal of their goods. Many of them disposed of their goods in the Madras City market outright and

certain exporters used to buy them, sort them in different average weights, qualities and grades and either ship them to public sales or sell them outright on C.I.F. basis to the buyers abroad. Certain big tanners also adopted the methods followed by the abovesaid exporters to dispose off their goods. Gradually the C.I.F. business came to stay in the skins line as well. About half of the output of all the skin tanneries in the Province came in this way to be sold on C.I.F. basis. The remaining half continued to be consigned to the public sales in London. This was the position when World War II began. In the years before the war, the average export of tanned skins was about 2,000 bales per month divided more or less equally between goat and sheep skins. When the war began, tanned hides were more required for purposes connected with the war. Therefore, His Majesty's Government encouraged increased production and supply of tanned hides and restricted their purchases of tanned skins. It has to be stated here that at that time all the exportable quantity of tanned skins as well as tanned hides had to be supplied only to the United Kingdom, though subsequently they allowed certain quantities of tanned skins to be shipped to countries like South Africa, America, etc. The tanned skins were being sent to the United Kingdom on C.I.F. basis and also to the allocation sale which took the place of the public auctions. The important point here is the ceiling prices were fixed for the goods that were sold on C.I.F. basis as well those sold in the allocation sale. Though these prices were fixed in consultation with the Government of India, they were very uneconomical and were not commensurate with the rise in prices of the raw materials, labour and of consuming articles in general. On account of this, the skins tanning industry suffered heavily and the trade was agitating for relief. The shipments of tanned skins dwindled down to about 30 per cent of the pre-war figure. Now, after the war, though the ceiling prices have been removed, the prices for tanned skins in the United Kingdom are being controlled and restricted in an indirect manner by currency and other regulations. Though the tanned skins are at present free to be exported to any countries abroad, the United Kingdom has all along been the chief buyer of the East Indian tanned skins and, therefore, her regulations and economy affect the Indian trade. Unless other markets are sufficiently developed and the Government of India take the steps recommended in this report for encouraging this industry, the position will not appreciably improve.

26. The physical volume of the East India kip business is shown in *Annexures* 8–10. During the year 1944–45, the number of pieces, weight and value of the tanned hides and skins exported are 2,049 (in thousands) and 9,090 (in thousands); 4,045 (tons) and 2,613 (tons); 127·1 and 160 lakhs of rupees respectively. The volume of this business as compared with all-India is shown in *Annexures* 11–19. The number of tanneries producing the South

Indian tanned leathers in the Presidency according to the statistics collected by the Committee is 469. The distribution of the tanneries in the different districts of the Presidency are given below :—

TABLE VI.

1	North Arcot district ..	192	11	Guntur district ..	5
2	Mathurai district (Dindigul)	53	12	East Godavari district.	4
3	Chingleput district ..	53	13	South Arcot district ..	4
4	Coimbatore district ..	45	14	Tirunelveli district ..	4
5	Tiruchirappalli district.	26	15	Salem district ..	2
6	Vizagapatnam district.	20	16	Chittoor district ..	2
7	West Godavari district.	16	17	Anantapur district ..	5
8	Krishna district ..	16	18	Nilgiris district ..	1
9	Bellary district ..	12		Total ..	469
10	Nellore district ..	9			

A statement of the tanneries based on the information collected by the Committee is given in *Annexure* 20. The number of workmen engaged in the tanneries may be taken as 20,000. About 10,000 persons are engaged in the auxiliary trade[14].

RAW HIDES AND SKINS.

27. The annual production of raw hides and skins based on the census of 1944 has been given in *Annexure* 6. The net exports and imports (in weight) of raw hides and skins of the Province (foreign, coastwise and railborne for the years 1933–34 to 1947–48) are given in *Annexures* 21 and 22. The statistics regarding the import of raw hides and skins into the Province by rail from the different Provinces for the years 1935–36 to 1940–41 are given in *Annexures* 23 and 24. It has not been possible to calculate accurately the number of hides and skins because there are no details given of the classes of raw hides and skins. In a big hide tanning centre, it has been found that about 65 per cent of their hides come from Bengal, 25 per cent from United Provinces and 10 per cent from local areas. In another centre, about 39 per cent comes from Central Provinces, 35 per cent comes from Orissa, 12 per cent comes from Bengal, and 14 per cent comes from local sources. It can, therefore, be safely assumed that not more than 20 per cent of the hides processed in South Indian tanneries are from the local production. Almost the whole of the local production of the skins of the Province appears to be absorbed locally.

METHODS OF MANUFACTURE.

28. Although the industry has been running for more than a century, there have been no radical changes or improvements in the methods of manufacture. The outstanding changes are the

[14] Report of the Court of Enquiry into Labour Conditions in Beedi, Cigar, Snuff, Tobacco-curing and Tanning Industries: B. V. Narayanaswami Naidu: Government of Madras, 1947, page 117.

use of imported wattle bark in place of avaram and konnai in the tannage of East Indian kips; the use of acids, in a few cases for deliming in place of the old method of deliming merely by washing with water; the use of syntans during the later stages of tanning to improve the colour of the produced leather and the limited, and rather forced, use of wattle extract in the tannage of hides. Apart from these, there have been no changes worth mentioning. The period and cost of tanning must be sought to be lessened. Among the beamhouse operations soaking the dried stock with the aid of chemicals might be introduced with advantage. Only in a very few cases, sodium sulphide appears to be used in soak waters. The study of the different soaking agents with reference to the quickness of soaking, the quality and yield of leather obtained and cost may be taken up with advantage. The question of shortening the period of liming by the use of sharpeners may be considered. The paste method of sharpening has been found to be suitable and has been found to save about one-third of the usual period of liming without detriment to the quality of finished leather. Acid deliming may be used in the place of the present methods of deliming. A qualitative control of deliming might suffice. The fleshing and scudding by machines will be helpful to the industry. The method of, and the materials used for, tanning might be improved. The possibility of the method of tanning in leach liquors in the place of the present layer method may be considered. This might save a good deal of the tanning materials used at present in tanning. The spent materials contain about 25–30 per cent of their original tannin content. If the materials are leached and the leach liquors used for tanning, there will be saving of tanning materials which will result in a lower cost of tannage. This will be helpful especially at present when the cost of tanning materials is very high. If the leached liquors are not found to give as mellow a tannage as the present method, suitable alteration might be made, which might still shorten the period of tannage and yield the same weight and quality of leather without increasing the cost. This might also decrease the labour involved in handling the hides from out of the tan pits to a certain extent. Agitation during the process of tanning might also be tried. At the present time in hide tannage due to the shortage of wattle bark, other materials are being used. It is suggested that the choice of the materials used may be determined after systematic examination. For example, the kips tanned with materials other than wattle must be able, during the process of re-tanning, to strip as much and as quickly as the wattle tanned leather. The myrobalams used for the final tanning or bleaching of the leathers are not, under the present methods, fully leached out. The spent myrobalams may contain as much as 50 per cent of the original tannin. A better method of conserving this waste has to be worked out. Spent myrobolams of the South Indian tanneries are used for bag tanning in a few of the mufassal centres. The possibility of utilizing spent

tanning materials of a tannery might be considered for carrying on the bag tannage in the same tannery. The quantity and quality of the oil used has to be carefully regulated.

ECONOMICS OF SOUTH INDIAN TANNING.

29. The percentages of the cost of raw hides and skins; lime and oil; tanning materials; and labour to the total cost of production of leather taken out from a few tanneries during the later part of 1947 is given in *Annexure* 25. The average percentages are given below:—

TABLE VII.

(All in percentages).

	Raw.	Tanning materials.	Lime and oil.	Labour.
Skin	81·7	9·7	2·6	6·0
Hide	80·0	11·0	3·5	5·5

If the suggestions given above to shorten the time and reduce the labour and cost of materials be adopted, then the cost of tanning might probably be reduced.

ADULTERATION OF LEATHERS.

30. Adulteration of leathers may be said to be the deliberate addition of substances, which are not required for their tanning. The South Indian tanned leathers changed from the crude fleshy and oily condition to the light coloured, clean and nice condition of the later days. Adulteration slowly crept in, the first adulterating agent being Epsom salt. This was first used to give a whiter colour and subsequently to cover some of the defects of the leather which might lessen the value of it and to add weight. The deliberate use of greater quantities of oil might also be called adulteration. Later, during the war, the deliberate additions of other substances like chalk, china clay and rice starch were being made. Several complaints of the use of these adulterants have been received from the overseas buyers. It has to be stated that the use of these adulterants would have been discontinued, as it was done for a considerable period before the World War II, if the overseas buyers and authorities had not fixed prices by themselves in a rather arbitrary manner, if economic prices in keeping with world conditions had been paid for pure and unadulterated goods and if the overseas buyers had not purchased adulterated goods and encouraged the practice in spite of their knowning they were adulterated. Yet it is the opinion of the Committee that this practice of adulteration should be completely stopped to maintain the prestige and reputation of the South Indian leather, which was earned by the honest work of the tanners of the earlier days. In the first instance, the Trade Associations concerned must be left to take effective steps before the Government consider the advisability of taking any measure for stopping this undesirable practice.

CHAPTER VI.

TANNING MATERIALS.

31. The tanning of leather with infusions of natural vegetable tanning materials—vegetable tanning has been employed in this country from a very long time. Until the introduction of chrome tanning into the country about forty years ago, all the leathers manufactured in India were of vegetable tannage. India abounds in different kinds of tanning materials. Until the year 1920 there was merely export of tanning materials witb very little of import. After the first war, wattle bark from South Africa slowly crept into the Indian tanning industry. The unfortunate position of depending on foreign imported tanning materials was realized when the import of wattle bark from South Africa stopped with the cessation of trade relations with that country. It is still more unfortunate that no serious attempt has yet been made to overcome the situation. The palliative of the import of wattle bark from East Africa and other places and of Quebracho extract from America do not fit in with the expressed policy of the rapid development of the industrial resources of the country. During the first war, work was conducted on an elaborate scale by Fraymouth and Pilgrim[1], amongst others, to determine the suitability of the use of less known and less used indigenous tanning materials in the tanning industry. A tannin extract factory was also established--the Esociet Tannin Extract Factory[2]. It is rather unfortunate that, with the cessation of war, this work was not pushed through in the manner and to the degree required in the best interests of the country. Foreign countries chiefly the United States of America has felt the awkwardness of depending on foreign countries for their supplies of tanning materials, and have taken up a long range programme of increasing their supplies of tanning materials. It is proposed to start cultivation of wattle bark on a large scale in California in America[3]. In England attempts were made to use the available materials in the place of those not easily available but which were imported, by means of scientific research. It is therefore high time that India makes a serious attempt to make itself self-sufficient with reference to its supply of tanning materials. No clear statistics can be readily obtained regarding the quantities of the tanning materials available in the different provinces or the movements, in quantities, of the different materials in different provinces of the country or different places within a province. A survey should be made of the tanning materials available in the province. This has to be linked up with a complete study of each tanning material with

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[1] Indian Tan stuffs and their tannage: Fraymouth and Pilgrim: Bulletin No. 1—1918, Indian Munitions Board.

[2] First Annual Report on the Working of the Esociet Tannin Research Factory: Indian Munitions Board, 1918.

[3] California Launches Wattle Industry: Kegley: Journal of the American Leather Chemists Association, XLI, 522 (1946).

reference to the latest researches on the mechanism and control of vegetable tanning processes. The manufacture of tannin extracts in India from the local tanning materials is being carried on a scale, that can be only considered to be small, when compared with the availability of these. At the present time only myrobalam extract, is manufactured in the country. The study of the possibility of preparing tannin extracts from other materials or blends of materials should be taken up early.[1]

32. Tanning materials may be grouped under three categories: Bark tans, fruit tans, and leaf tans. The more common bark tans occurring in the Province are avaram (*Cassia auriculata*), konnai (*Cassia fistula*), babul (*Acacia arabica*), tela tumma (*Acacia leucopholea*), matti (*Terminalia tomentosa*) and nirmaddi (*Terminalia arjuna*) and the wattle (*Acacia decurrens syn mollissima*). The important fruit tan is myrobalams (*Terminalia chebula* or *Mollissima*). Among the leaf tan the important is Dhawa Sumac. The materials that are commonly used in the Presidency are avaram, wattle, myrobalams and konnai. Among the less known and less used materials come babul, irumbagam (*Hopea parviflora*), Kahua and Dhawa Sumac. The average consumption of the important tanning materials in the Presidency in quantity and in units of tannin are given below :—

TABLE VIII.

Materials.	In tons.	
	Quantity.	Units of tannin.
Wattle bark	20,000	7,000
Avaram bark	20,000	2.800
Myrobalams	9,000	2,700
Wattle extract	1,000	640

The comparative costs of the different tanning materials used in the Presidency are shown in Table IX.

TABLE IX.

The cost per unit (0·01 ton) of tannin of the different tanning materials used in the Presidency.

Material.	In 1928.			In 1948.	
	Per cent tan.	Cost per ton.	Cost per unit of tannin.	Cost per ton.	Cost per unit of tannin.
		RS.	RS. A. P.	RS.	RS. A. P.
Avaram bark	14	150	10 11 5	358	25 9 0
Konnai bark	11	95	8 10 2	215	19 8 0
Myrobalams	27	203	7 8 3	246	9 1 9
Imported wattle bark ..	35	175	5 0 0	370	10 9 2
Divi Divi	33	108	3 4 0	90	2 11 7
Imported wattle extract	64	Not available.		740	11 9 0
Imported quebracho extract.	65	Do.		680	10 7 0

[1] Tanning materials of India: K. Seshachalam Choudary: Tanner: 3, 11 (1948).

AVARAM BARK.

33. Avaram bark is the premier tanning material of South India. The use of it in the South Indian tannage of skins has not only come to stay, but has earned its own mark in the foreign countries, because of its special properties. (Vide *Annexure* 26.) The avaram (*Cassia auriculata*) shrub is very common and widely distributed in the Presidency. It occurs profusely in the waste lands of the Province and in open forests bordering on village lands. The more important districts contributing appreciably to the production are Anantapur, Kurnool, Godavari, Nellore, Cuddapah, Guntur, Coimbatore and Mathurai.

METHOD OF EXPLOITATION.

34. The right to collect the bark from reserved forests as well from lands at the disposal of the Government is leased in public auction to the highest bidder either for a period of one year or for three years. The contractor organizes the collection of the bark and its export to consuming centres. The purchaser has usually a number of sub-agents under him for the purpose of organizing the exploitation. Special class of labour is traditionally employed in the collection of bark. Normally it is done during the non-cultivation season and after the heavy rains. The tannin content and the quantity of bark produced are comparatively high in the case of three-year old plants which form the bulk of the collection, but normally no discrimination is made by the collecting coolies in the process of collection with the result that barks of all age categories get mixed up. The twigs are harvested with a light axe or chopper and the leaves are removed. Stripping of the bark is effected by beating the twigs with wooden mallet or stones against a flat stone. The separated bark is dried for three or four days. The local agent purchases the bark so obtained at agreed rates and the material is transported from the forests to the rail head whence it is railed to the consuming centres. Exposure to rain reduces the tannin content of the bark and it is imperative that transport to consuming centres should be done expeditiously but this is seldom practicable when transport is so difficult to procure. Lot of controversy exists regarding the efficacy of an annual or triennial lease. The present practice is that in most districts, it is annual and in a few, including Anantapur, it is triennial. The annual production of the bark from the reserve forests and lands at the disposal of the Government is roughly estimated to be 2,000 tons whereas it is estimated that 11,000 tons of bark are collected annually from the reserves and unreserves of the Presidency (details are given in *Annexure* 27). A statement of the quantity

of the bark from the reserves during the years 1930–31 to 1945-46 is given below :—

TABLE X.

Year.		Avaram bark in tons.	Year.		Avaram bark in tons.	Year.		Avaram bark in tons.
1930–31	..	1,994	1936–37	..	1,036	1942–43	..	1,005
1931–32	..	2,104	1937–38	..	2,354	1943–44	..	728
1932–33	..	895	1938–39	..	1,583	1944–45	..	209
1933–34	..	3,467	1939–40	..	952	1945–46	..	1,665
1934–35	..	880	1940–41	..	716			
1935–36	..	4,020	1941–42	..	429	Average	..	1,502

In 1927 plantations were formed in Vizagapatam, Anantapur, Nellore on red loam, gravelly and lime kankar soils respectively. The seedling crops in all the plantations in Nellore, Vizagapatam and Anantapur districts were cut and samples of bark were analyzed.

TABLE XI.

Name of district.	Plantation soil.	Tannin percentage at				
		First year.	Second year.	Third year.	Fourth year.	Fifth year.
Nellore ..	Limy, with kankar nodules.	22·24	20·50	20·48	20·50	22·44
Vizagapatam	Red loam	16·06	18·93	19·18	19·24	19·86
Anantapur.	Gravelly soil ..	17·92	18·23	19·87	18·60	17·03

The above figures show that plants grown in limy soil are the richest in tannin and that the increase in tannin after the third year is very slight. In the case of Anantapur plantations the tannin content seems to fall off with inceasing age. One year old bark contains 16 to 20 per cent tannin and the rise in the tannin content from the first year to the third is between 2 to 3 per cent. If outturn be no consideration, then crops can be cut at the end of the very first year as its tannin content is reported to be sufficient for tanning purposes. But this course is obviously inadvisable from the economic point of view, as the yield of bark from one year old plants in ordinary soils is very little. Eleven thousand tons is supposed to be the annual production in the Madras Presidency. Out of this not more than 20 per cent is from the reserves, the remaining coming from the unreserves. An approximately equivalent quantity is imported from the Nizam and Mysore States thus making the total bark available in the Presidency as 23,000 tons annually. Taking the average of the export of bark tanned skins during the years 1936–37 to 1946–47, the annual consumption of avaram bark based on annual production of 6,500 tons of tanned skins is about 20,000 tons. The calculated consumption of avaram bark for the years 1936–37 to 1946–47 is

given in *Annexure* 28. The supply of bark from Mysore and Hyderabad has become less and irregular. The price has also increased. This shortage of avaram bark has led a few tanners to use wattle in the skin tannages. There is again a shortage in the supply of wattle bark. It is therefore very necessary that steps should be taken to increase the supplies of avaram bark by producing greater quantities of bark by starting plantations.

MEANS AND METHODS OF INCREASING THE SUPPLY OF AVARAM BY CULTIVATION.

35. It is understood that in Nizam's State this bark is so well protected under State regulations that no villager dare cut it unless it is three to five years old and that too by the villagers employed by the avaram bark contractors. The lease is for three to five years. A contractor has to fell in a firka or taluk on a cycle of three to five years. The bark extracted under such a system, is good and thick and contains a large percentage of tannin content. Till 1938, the removal of avaram for green manure from lands at the disposal of Government, except reserved forests, was freely permitted. When the question of restricting removals was raised by the Chief Conservator of Forests, the Government in their Order No. 1912, Development, dated 3rd August 1938, ordered that removal of avaram for manure leaves should be prohibited in all districts except Guntur, Anantapur, Chittoor, Tiruchirappalli, Ramnad, Kurnool, Cuddapah, Tanjore, Mathurai and Tirunelveli. The question of enforcing complete prohibition was raised by the Chief Conservator of Forests again in 1947 and in their Memorandum No. 108060-C-II/47-11, dated 25th September 1948, the Government extended this prohibition to the abovestated ten districts also. The cultivation of bark on a large scale in the waste lands in the districts of Kurnool, Anantapur, Bellary, Cuddapah, Guntur and Nellore may be taken up early and intensively. The area of waste lands available in the different districts of the Presidency [1] is shown in *Annexure* 29. It has been demonstrated by the Forest Department that cultivation of the avaram bark may be raised in Nellore, Vizagapatnam and Anantapur districts. Large areas may be selected and facilities be given to the ryots to grow plantation of this on a large scale. Areas of not less than 1,000 acres may be selected for the purpose. The land may be ploughed with tractors by the Government for the ryots, seedlings supplied to them and financial help and farming facilities be given to the ryots for this large scale cultivation. A special officer (of the Forest Department) should be appointed with the sole object of increasing the cultivation and production of avaram bark. Attempts should be made to collect these barks and grade them and sell them or despatch them to the tanners on a wholesale basis. There should be periodical analyses of the bark of

[1] Private information from the Chief Conservator of Forests, Madras.

different ages growing on different soils, and of bark from shrubs of different sizes. Arrangements should be made for easy and complete marketing of these barks so that the ryots may be attracted towards this cultivation. Attempts might be made to consider the possibility of this bark being grown along with some other remunerative crops without deteriorating the production of this bark either in quality or quantity. It is found that the cost of the present method of stripping the bark accounts for 40 per cent of the total cost of production of the bark. The cost of stripping the bark as at present being carried on by beating the twigs with wooden mallets, should be improved. The Department of Industries and Commerce has designed a handworked machine for the stripping up of the bark economically but practical tests are yet to be made with it. It is recommended that the possibility of using a machine, handworked or power-driven, that could strip the bark, more quickly and easily and therefore far more economically should be explored. Because of the high cost of stripping the bark experiments were conducted to see if unstripped bark could be used for tanning skins. It was found that unstripped bark could be used.[1] It is not however economical to transport the whole of the twig (*Annexure* 30).

KONNAM (*CASSIA FISTULA*).

36. This was one of the materials greatly used in the tannage of hides. Its place has almost been taken by wattle bark. The study of the bark was done at the Institute of Leather Technology.[2] The results are given in *Annexure* 31. The production of this bark from sources in the Province is estimated at 500 tons per annum and the contribution from Government forests and unreserves 300 tons. The statement of the quantity of barks from Government forests and unreserves during the years 1930–31 to 1945–46 is given below :—

TABLE XII.

Year.	Konnai in tons.	Year.	Konnai in tons.	Year.	Konnai in tons.
1930–31	..	1936–37	312	1942–43	583
1931–32	114	1937–38	236	1943–44	242
1932–33	290	1938–39	423	1944–45	138
1933–34	272	1939–40	453	1945–46	59
1934–35	360	1940–41	261		
1935–36	479	1941–42	225	Average	266·75

It is not popular due to its comparatively low tannin content and high cost of collection, as the tree occurs sparsely in the dry deciduous forests of the Province and in unreserves and private forests. On silvicultural grounds the exploitation of the bark is controlled by the Forest Department on a five-year cycle. The

[1] Avaram Bark: Choudary and Nayudamma: Journal of the International Society of Leather Trades Chemists, 1947—284–285.

[2] Studies on Konnam Bark I: Choudary and Nayudamma: Journal of the International Society of Leather Trades Chemists, 1948, 32, 211.

right to collect the bark from the reserves under departmental control and from unreserves is leased in public auction every year to the highest bidder who organizes the exploitation and transport. The lease is for one year only. The possibilities of intensifying exploitation and reducing costs need investigation.

MYRABOLANS.

37. Myrabolans is one of the important tanning material used in the South India. Its value and properties as tanning materials is given in *Annexure* 44. A great quantity of it is exported from the Presidency to foreign countries (*Annexure* 33). The calculated consumption of myrabolans for the quinquennium 1924–25 to 1946–47 is given below. The average annual consumption of the bark can be computed to be 9,000 tons.

TABLE XIII.

		TONS.
1924–25 to 1929–30	.. ..	8,266
1930–31 to 1935–36	.. ..	7,678
1936–37 to 1941–42	.. ..	12,561
1942–43 to 1946–47	.. ..	6,084

The myrabolan fruits are utilized after separating the stone and crushing the outer cover for the tanning industry. The tree occurs mostly in the dry deciduous forests of the Province both departmental and privately owned. The fruit ripens on the trees in February, March and is available for exploitation during the hot weather when the forests are vulnerable to fires. Figures of its collection from the reserve forests are given below:—

TABLE XIV.

Year.	Myrabolans in tons.	Year.	Myrabolans in tons.	Year.	Myrabolans in tons.
1936–37 ..	554	1940–41 ..	735	1944–45 ..	270
1937–38 ..	1,139	1941–42 ..	373	1945–46 ..	113
1938–39 ..	719	1942–43	504		
1939–40 ..	582	1943–44 ..	601	Average ..	559

The right to collect myrabolans is either leased as a separate unit or together with other items of minor forest produce every year in open auction to the highest bidder who makes arrangements for exploitation and marketing. Since the species occurs in the interior jungles, where labour is scarce, collection is not usually up to possibility, and intending buyers who are residents of towns, seldom realize the yield that may be possible to procure. Districts that contribute to production are Salem, Coimbatore, Godavari, Kurnool and Malabar. It admits of easy adulteration

and no grading is adopted. Emphasis is laid on the need to have some system of grading based on the tannin percentage before sale to the tanners. Myrabolan extract is not being used to any extent in the South Indian tanning industry. The quantity of myrabolan extract produced in India is very small when compared with the export of myrobalans. An Indian Myrabolan Extract Factory in Bengal is understood to produce 2,000 tons of extract annually.

WATTLE BARK.

58. Wattle bark is the bark of Acacias. Black wattle is *Acacia Mollisima Syn Acacia Decurrens*, while white wattle is *Acacia Dealbata.* The tannin content of the black wattle is about 35 per cent. This is the richest in tannin content of all the materials used in the South Indian tanning industry. This is imported mainly from South Africa. The use of this in the East India kip tannage started after the first war. The use of it has increased to such an extent that wattle bark has entirely replaced the indigenous tanning materials in the kip tannage except myrobalans. The increasing imports of the bark into the Presidency (with value) from 1917–18 to 1946–47 are given in *Annexure* 34. The imports into Madras and India are given below :—

TABLE XV.

Import of Wattle Bark into India and Madras.

Quinquennium ending.	India quantity in lakhs of cwts.	Madras quantity in lakhs of cwts.	Per centage of Madras import to India imports.
1923–24	0·24	0·19	78·18
1928–29	1·41	1·37	97·16
1933–34	2·28	2·28	100·00
1938–39	3·54	3·27	92·39

Except in the case of myrabolan no other indigenous tanning material had been previously marketed over a period of years properly graded or with a guaranteed tannin content. Apart from its producing suitable leather, its high tannin content, and thus the low cost per unit of tannin, the uniform standard of the quality supplied in neatly packed and pressed bales, its availability in adequate quantity have been responsible for its greater use in the tanneries. Due to the non-availability of avaram bark it is understood that the use of wattle bark has crept into the skin tannage also. This means a greater consumption of and need for wattle bark. The quantity of bark required annually may be put down at 20,000 tons. If it is used for skin tannage too then the quantity of bark required will be much larger. Wattle extract has come

to be used in the South Indian tanning industry. The imports of the wattle extract for years 1936–37 to 1947–48 are given below :—

TABLE XVI.

			TONS.			TONS.			TONS.
1936–37	..	982	1940–41	..	11	1944–45	..	846
1937–38	..	754	1941–42	..	308	1945–46	..	870
1938–39	..	10	1942–43	..	1,660	1946–47	..	667
1939–40	..	545	1943 44	..	787	1947–48	..	1,745

Wattle bark has come to stay in the tanning industry in India. Attempts have to be made to make the country self-sufficient with regard to this bark by starting wattle plantations. Wattle plantation has not been tried in any other Province in India except the Madras Presidency. The Forest Department started plantations only two years ago on the Palnis and Nilgiris, but private plantations on a small scale have been in existence for many years. The local barks are found on analysis, to be not inferior to the imported bark. [1] (*Annexure* 35.)

EFFORTS TO INCREASE WATTLE PLANTATIONS.

39. The Government of Madras had offered to set apart areas for private planters on very favourable terms. During the several meetings of this Committee this question was discussed and the tanners did not show any inclination to take advantage of the terms granted. Later the Chief Conservator of Forests and the Secretary of the Committee met the members of South India Tanner and Dealers' Association (Ranipet) and discussed this question with them at Ranipet in great detail, but no action was forthcoming. This attitude of the tanners is quite understandable in the light of the fact that wattle plantation is a separate and large industry by itself requiring large capital, special knowledge and attention. It may, therefore, be assumed that the tanners who are themselves engaged in another industry are not naturally prepared to consider the question of raising plantations. The Forest Department has therefore to take up the question. In February last the Director-General of Industries and Supplies, Government of India, convened a conference of the representatives of the Forest departments of all the Provinces. when the question of starting of large scale wattle plantations in India was fully discussed. The Government of Madras was requested to start wattle plantations on a large scale as early as possible to relieve the tanners of the difficulty of short supply of the bark. It is understood that the Chief Conservator of Forests has submitted to the Government plans for a large scale plantation on the Palnis and for the Nilgiris a scheme is under submission to Government. It is recommended that the Government would sanction the scheme

[1] Wattle Bark: Its Use and Cultivation in South India: K. S. Choudary: Bulletin No. 3, Department of Industries, Madras, 1927.

immediately and get the work started, taking into account that bark could not be obtained from a plantation until it is eight years old. It is felt necessary that chemical research work regarding utility of the bark from its different aspects should be conducted with reference to the first plantation and followed with the age of plantation. It is recommended that the chemical work as outlined in the note (*Annexure* 36) be included as an essential part of the research work. Since wattle bark is used all over India it is suggested that this piece of chemical research work may be taken up by the Central Leather Research Institute to be started at Madras.

LESS KNOWN AND LESS USED TANNING MATERIALS.

40. *Hopea Parviflora—Iron wood of Malabar.*—It was found from experiments * conducted at the Institute (*Annexure* 37) that the bark contains about 25 per cent tan and yields good leather. It has also been shown that it can be used in sole leather tannage. It is not available in large quantities. It is found in South Kanara, Wynaad and Tinnevelly divisions. Statistics of production are not available. It is recommended that the possibility of the use of this material in the South Indian tannage be explored.

TERMINALIA ARJUNA—KAHUA BARK.

41. The tannin content of this bark is about 15 per cent. The bark is easily leached and the liquor undergoes very little fermentation † (*Annexure* 38). It is understood that hides are tanned with this bark in blend with myrobolans. Statistics regarding its collection are not available. It is recommended that the possibility of the use of this material in the production of cheap class of upper leathers be determined.

ANOGEISSUS LATIFOLIA—DHAWA SUMAC.

42. The leaves are 1 inch to 2 inches wide and 2 inches to 3 inches long. Young leaves and twigs ½ inch to ¾ inch in length are said to contain a high percentage of tannin. This variety of tan stuff is available in the forest divisions of Madura and Cuddapah. Statistics about its collections are not available. It is suggested that the possibility of the use of this in South India tannage be studied.

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* Bark of Hopea Parviflora as a Tanning Material: Choudary and Yoganandam and Arokianathan: Indian Forester, September 1928.

Bark of Hopea Parviflora as a Tanning Material: Staff of the Leather Trades Institute: Bulletin No. 27: Department of Industries, Madras, 1929.

† Terminalia Arjuna as a Tanning Material: Choudary: Journal of the International Society of Leather Trades Chemists, 1941, 25, pages 56-58.

BABUL.

43. This is not used in the South Indian tannage because of the bad colour it imparts to the leather. It is used to a great extent in the villages by the village tanners. It can advantageously be used in the sole leather tannage; as a matter of fact this was being used in Cawnpore in the sole leather tannage before the introduction of wattle. It cannot be obtained in large quantities at one particular place. It is, however, suggested, that the use of it in sole leather tannage be studied.

DIVI DIVI.

44. Divi Divi (Inki Kaya, Inki Kai), *Caesalpinia Coriaria* is the pod of the tree which grows to a height of 20 to 30 feet. It grows in almost all the districts throughout the Presidency. It is rarely used for tanning in the Presidency. It is more used for the manufacture of inks. It contains 33 per cent of tannins (calculated to 10 per cent moisture). Next to wattle it is the richest tanning material. Divi Divi liquors ferment rapidly and lose tannins on keeping a few days. The colour of leather yielded is not comparable with the usual South Indian tanned leathers. These are the reason for its not being used to any extent in the tanning industry. A preliminary study of this material was carried out at the Institute *. When there was shortage of wattle bark in the Province the possibility of utilizing this material in the South Indian tannage was taken up for study. The experiments were found to yield good results. The cow hides tanned with this material in blend with other locally available materials by Mr. K. Seshachalam Choudary were shown to the members of the Committee and they were satisfied with the quality of the leathers. Since it is found to be the cheapest indigenous tanning material (paragraph 32) it is felt very necessary that further experiments should be carried on to determine all the manners in which this material could be fully used in the tanning industry. It is suggested that the possibility of manufacturing an extract of this material should also be explored.

SYNTANS.

45. Syntans were in use in the tanning of leather in Germany, the United States of America and the United Kingdom for some years. The use of this in the South Indian tannage, though in limited quantities, commenced about 15 years ago. These were used more to bleach the leathers, than in the real tannage. There are now a good number of syntans being imported into the Presidency. Due to the shortage of wattle bark, other materials were forced to be used in its place, in full or in part. These materials do not very often yield the usual light coloured East Indian

* Divi Divi by K. S. Choudary: Bulletin No. 26: Department of Industries, Madras, 2928.

leathers. The use of the syntans have been found to be useful to remedy this defect. It is understood that the Council of Scientific and Industrial Research had succeeded in preparing certain syntans from naturally occurring indigenous raw materials *. These have been found useful as adjuncts to the babul or other vegetable tannages. Attempts are being made to finalize the work by carrying out trials on a commercial scale in tanneries. Experiments may best be carried out on the methods by which this syntan could be used in the South Indian tannage. If the results are found successful, this will lead to the use of such of those indigenous materials, that have not been used in the South Indian tannages because of the rather unsatisfactory colour of the leathers produced. It is recommended that the possibility of the use of syntans, especially those that had been prepared from naturally occurring indigenous raw materials, in the South Indian tannages at the present moment of shortage of wattle bark, should be taken up for study immediately.

CHAPTER VII.

RE-TANNING AND FINISHING OF EAST INDIA TANNED LEATHER IN THE PRESIDENCY.

46. The East India tanned leather exported from India is re-tanned and converted in the United Kingdom and other countries, into different types of leather. It would be a great economic advantage if this work of re-tanning and finshing were done here, instead of exporting the mere so-called half tanned leathers. There is a great possibility for the development of this aspect of the East India kip tannage. It need not be apprehended that such a procedure will jeopardize the present system of South Indian tannage and especially its sales by export. This can be started gradually. It may not be possible for all the South Indian tanneries to take up this new line of work. The tanneries are not located in one central place but are scattered throughout the Presidency. The existing high tariff in foreign consuming countries against the important of finished leathers and leather goods is a serious obstacle in the way of the development of the finished leather industry in this country as a large scale. Attempts might however be made by continuing the export only of the best quality stuff and trying to finish a portion of the others for either local consumption or export into other presidencies. It need not be apprehended that there are not sufficient technicians to guide this work. There is certainly the difficulty of obtaining the machinery required. The Government should aid these tanners in the first instance. One or two important yards for re-tanning and finishing of East India tanned leathers should be opened by the Government. A small shed with a full set of machinery might be put up at each centre.

* Private information.

The tanning and dyeing part of the work may, as far as possible, be tried to be done in the South Indian tanneries already existing in the centre. The finishing operations may be conducted in these yards. These yards may be in charge of trained technicians who will help the tanners in their finishing operations. A nominal charge for finishing these leathers might be levied. This method will not only enable this work to be taken up immediately but will also give confidence to the tanners to take up these lines of work independently after a few year's work and experience. The Government should be able to get two or three sets of machinery from the United Kingdom or the United States of America. The Committee recommends that this scheme should be started in the two following centres: Madras and Vijayawada. It is the opinion of the Committee that initiation and development of the scheme would certainly open the eyes of tanners to the need for employing trained technicians. This will, in its own way, enlarge the activities of the Institute as well as help the development of the industry. This work had been started by a few during the war but they were embarrassed by non-supply of machinery and other factors during the war period. This change over from an export trade of semi-finished leather to that of finished leather cannot be taken up at a more opportune time than at present. The different kinds of leathers that might be manufactured are chrome retanned kips, Semi Chrome Villow and Box Calf, Coloured Linings and Upholstery Leathers, Moroccos, Imitation, Sambhur, Kip linings, Coloured Suedes and Russet and Waxed Kips. The Government should give all the technical help and direction necessary for starting this on a decent, if not, on a large scale and even financial help if necessary. The first and important step in this direction, on behalf of the tanners, appears to the Committee to be, unification of small tanneries to the best advantage of the tanners themselves, the industry and the trade.

SOLE LEATHER.

47. The largest, if not the whole quantity, of the vegetable tanned sole leather manufactured in the Presidency is the Pit tanned sole leather. It has not been possible to collect any correct and reliable statistics either from the manufacturers or from the rail borne trade. From information gathered from several sources it might be calculated that about 5 to 6 lakhs of lb. of leather are manufactured in the Presidency. From information regarding the controlled tanneries in the Presidency, as known to the Directorate of Leather and Footwear, Government of India, it has been calculated that, during the three years 1943—1945, the average number of sides of leather supplied by five tanneries in South India amounted to 1·5 lakhs of sides [1] or 18 lakhs of lb. of leather. From a rough computation of the quantity of shoes, slippers and

[1] Private information from the Development Officer (Leather), Government of India.

chappals produced in the districts and the city, it may be calculated that about 34 lakhs of lb. of sole leather are consumed in this Presidency. The present output in the Province does not appear to be more than 20 per cent of the requirements, 18 lakhs of lb. was however being produced during the war period by five tanneries. There were several other tanneries producing these in smaller quantities but no figures are available regarding these. The tanneries which had been producing pit tanned sole lathers during the war, might continue to do this during normal times. Even if these leathers are manufactured in greater quantities, there is every probability of their being consumed within the Province. From private communication from an important sole leather manufacturer, it is found that about 80 per cent of his output is being sold outside the Presidency. Expansion of the manufacture of this class of leather, including the retanned Dhori hides, is therefore recommended to be pushed on. The two main difficulties that might stand in the way of expansion are the right quality and quantity of raw buff hides and tanning materials. Tannin extracts may also be required for this purpose. Attempts should be made to explore the sources of the availability of the raw hides and improving and of expanding them. With regard to tanning materials and extracts, researches should be conducted in the manufacture of extracts required for this purpose and in the use of several tanning materials available in this country, but less used, either in blend or alone or with the aid of any other chemical agent. The materials that have to be experimented upon in this direction are mangrove, babool and divi divi. It is recommended that this work should be taken up immediately.

LEATHER BELTING.

48. Belting leather in Europe and America is produced from selected ox hides by the Pit method of vegetable tanning. In India belting butts are produced from the best available buffalo hides by the Pit tanning processes, not unsimilar to that used in sole and harness leather tannage. The imports of leather belting into Madras Presidency as compared with that into India during the years 1934–35 to 1938–39 are given below :—

TABLE XVII.

Year.	Value. India.	Value. Madras.	Per cent Madras on India.
	LAKHS.	LAKHS.	
1934–35	24·6	..	..
1935–36	24·7	..	..
1936–37	18·8	1·2	6·4
1937–38	27·5	1·45	5·2
1938–39	22·9	1·43	6·3

Madras Presidency thus imports only about 6 per cent of the total belting leather imported into India. The total value of the imports of belting leather into the Presidency as compared with the other kinds of beltings is given in *Annexure* 39. The average percentage of the leather belting on total belting imported is about 35·2. The average value of belting leathers imported into Madras during the ten years ending 1945–46 is Rs. 1,58,846 (*Annexure* 39) or about 60,000 lb. Attempts should be made to increase the production of belting leather in the Presidency. The Presidency stands first in the production of buff hides in India. Attempts should be made to manufacture belting butts by suitable processes of tanning and currying. Intensive research should be taken up in determining and working out an efficient method of tanning and dressing buff leather for belting, paying attention to its tensile strength and non-stretchability. Attempts should also be made to select the right type of buffalo hides in consultation with the Veterinary Department, if found necessary.

ROLLER SKINS.

49. The roller skins, made from the vegetable tanned sheep skins, are used in spinning mills in the textile industry. It is estimated that skins valued at from 6 to 8 lakhs of rupees were imported annually into India. Attempts were made to manufacture suitable roller skins in India before the first war. Its manufacture was greatly stimulated during the last war. A few tanneries in the Presidency do make roller skins at present. From the number of spindles in the Presidency it might be estimated that about 3½ lakhs of square feet or one lakh of skins would be required annually. The average annual import of these skins into Madras Presidency from the sea borne trade is approximately 60 cwt. valued at Rs. 50,000 (*Annexure* 40.) In the absence of statistics regarding those borne by the rail trade from other presidencies, it is not possible to say what proportion of the quantity required in the Presidency is imported. A manufacturer of roller skins states, "Roller skins are also manufactured by us but in view of the fact that the import of these are allowed to come into the market, the sales of these could not be increased to the fullest extent. We can manufacture any amount of these when demand arises." Mr. Chambers has stated that "the hair sheep skins of Madras are the best raw materials for roller skins but unfortunately only a few of them yield leather of the require size 26″ × 22″"[1]. The Committee therefore feels that the possibility of manufacturing the best kind of roller skins required and of exploring the possible sources of the kinds of sheep skins required for manufacturing these should be taken up for study. It is recommended that the roller skins industry should be protected by the Government of India.

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[1] Report of the Panel on Leather and Leather Goods: Government of India, 1947.

CHROME TANNING.

50. The chrome tanning of leather came into practice in the later part of the nineteenth century. In Madras this tanning was first started under the auspices of the Government by Sir Alfred Chatterton in the early days of the twentieth century. It stands to the credit of this presidency that, one of the first and largest chrome tanneries of Asia was started in Madras by the late Chambers. This industry started with the tanning of chrome kavalais and chrome sole leathers. Now all classes of chrome leathers are manufactured in the Province. The processes of chrome tanning have developed enormously as a result of modern research. There is a great scope for the enlargement of this industry, in its several aspects in this Presidency. The manufacture of chrome kavalais, chrome soles and waxed soles can be carried on as a cottage industry. From private information obtained from the manufacturers it may be stated that the following classes of leathers are manufactured in this Presidency, in the undermentioned approximate quantities :—

TABLE XVIII.

	SQ. FT.
Box, willow calf and sides	634,375
Sambhur finished cow sides	639,375
Glazed kid	3,630,000
Chrome linings	225,500
Chrome suedes	877,800
Nu buck	51,500

MARKETS FOR THE FINISHED LEATHERS.

51. It has already been pointed out that the United Kingdom is at present controlling the purchase of the South Indian tanned leathers. The different ways in which the South Indian tanned leathers could be manufactured locally and the different classes of leathers that could be manufactured in the Province have already been dealt with earlier. The Committee feels that, with mere enumeration of and pointing out the scope for the different classes of leathers that could be manufactured locally, it has not finished its work. The State should help in obtaining better markets for all the classes of leathers manufactured. The Indian Trade Commissioners in the several countries of the world should take up the question. Samples of the South Indian tanned leathers for export should be sent to the Trade Commissioners and they should be requested to find out markets. If this is not readily possible under the present conditions, samples of the different classes of leathers, and leather goods that could find a market in the respective countries, may be collected and forwarded to the Province, so that the tanners may switch on to the manufacture of these classes of leathers with more confidence. A special officer may be appointed

for this purpose. It has been suggested by the Government of India Panel on Leather that a Leather Advisory Board should be appointed. It is the considered opinion of the Committee that one officer could do this work more efficiently than an Advisory Board. It is recommended that a Leather Development Officer be appointed for the Province, quite apart from the present staff of the Department of Industries and Commerce. He should be one who has a knowledge of the principles and processes of leather manufacture and of trade conditions in the Province.

CHAPTER VIII.

TECHNICAL EDUCATION AND TRAINING.

52. Although the tanning industry had been carried on progressively in the Province for more than a century, no attempts were made to establish an institute for the training of technicians until the year 1915. During that year the Leather Trades Institute was started in Madras. This is the first of its kind in India. The first several batches of students included those from other provinces. More than six batches of students had passed out of the institute. After several alterations, the present (Reorganized) Institute of Leather Technology started its revised tuitional work from July 1946. There is at present a Diploma course of three years in leather technology, a Certificate course of three years in leather goods manufacture and an Atisan course of two years in tanning and leather goods manufacture. (Details are given in *Annexure* 41). The manufacture of leather has passed the days of empiricism, thanks to the work of the leather chemists. It is therefore necessary that there should be enough of leather technicians available for the industry to develop in a manner to stand competition.

53. The Committee offers a few suggestions regarding the courses. They desire that students must be given opportunities to work in larger lots on semi-commercial scale so that they can have the confidence to start working on a commercial scale at the tanneries when they are employed. They should be well equipped with the methods of controlling the several processes with reference to each class of leather. It is suggested that since all the students may not be found efficient both in tannery and laboratory work the students might be made to specialize in either of the two, according to their efficiency, without detriment to the overall standard required of each student. It is also suggested, in the interests of the development of the industry, that attempts should be made to get different batches of students specialized in different classes of work, so that any tannery employer might easily choose the technician he wants. The different classes of work may comprise of

heavy leathers; upper leathers; dressing and finishing of South India tanned leathers; dyeing and finishing; and laboratory control. It has already been pointed out that the students should be given intensive training in tannery work. The idea that each student, after passing in the examination should undergo apprenticeship for one year in a tannery approved by the Government, before obtaining his Diploma, is commendable. It may not be possible to get apprentices admitted in the tanneries easily. It is therefore recommended that the legislation, that is meant to be passed regarding the taking up of apprentices in the factories by the several industries, should be passed very early to enable the students passing out of the examination in April 1949 to start apprenticeship course without loss of time.

54. It is understood that admissions to the certificate section have not been encouraging. It is felt that three years is rather a long period for specializing in the subject and award of a mere certificate in leather goods manufacture after three years of training is perhaps not attractive. It may be pointed out that there are similar technological courses in Bengal and Bombay but the duration of the course is not more than two years. It is therefore recommended that this Certificate course be replaced by a Diploma course in Leather Goods Manufacture. Eligibility in the S.S.L.C. examination might be stipulated as the minimum qualification for admission. It is also recommended that durinug the two years' course the students should be given training in the manufacture of sole leather and in the manufacture of different classes of upper leather from the East Indian tanned hides and skins. It is desirable to give effect to this change after the complete set of hand-worked and power-driven machinery have arrived and after the Institute is provided with the necessary building and equipment. The present three years' Certificate course is, however, recommended to be altered to a two years' course immediately. The Committee feels that it would be better if the Artisan course at the Institute be abolished and run instead in the mufassal as suggested in paragraph 71.

55. It is felt that the trained tannery operatives are required in a greater numbers than the technicians, for a number of tannery operatives have to work under one technician. It need not be emphasized that it is the quality and quantity of work put in by the tannery operatives that decide the class and quality of leather manufactured, in short, the efficiency and maintenance of the good record of the tannery. It is regretted that this course has not been started earlier. It is recommended that the Principal of the Institute of Leather Technology be asked to contact the different tanneries in the Presidency, and ascertain the number of operatives they would like to train and the class of course they would like to be trained in. After obtaining this information he is requested to make very early arrangements to start this course.

The qualifications for admission to this course has been put down as ability to read and write English and to follow lectures given in English. It is recommended that under the present conditions obtaining in the industry it may not be possible to get a decent number of admissions and it is therefore recommended that arrangements may be made to give these lectures in the local language without deterioration to the quality of tuition. It is recommended that this course be started in July 1949. There is also a part-time course of six months' duration in some special branch. The Committee feels that this is very important being almost a Refresher course. The Principal is requested to give wide publicity to this course and correspond with the tanners and try to take in at least six candidates every year. It is hoped that training in the control of the several processes along with analyses in the laboratory be included in this. It is also suggested that the duration of the course need not be fixed at six months but may be varied according to the subject chosen and the qualifications of the candidate. undergoing the course. The Committee is of the opinion that the possibility of the opening this course early, even with the present accommodation, should be considered seriously.

56. The Committee is in complete agreement with the recommendation of the Government of India Panel on Leather [1] that "until there is an appreciable increase in the number of students seeking training in Leather Technology, it may be better to have a few tanning institutes where facilities should be provided for training students from other Provinces." The Government of Madras may take in students from other provinces, where there are no leather institutes, especially Orissa, Assam and Nagpur. It is also suggested that this Government may consider the formulation of rules with regard to the contributions to be made by the Provincial Governments who agree to send in their students. The Committee considers that more than one Institute of Leather Technology is not needed for the Presidency at the present time. The question of opening of schools of a lesser standard is dealt with in paragraph 71.

57. The question of absorbing the several technicians trained at the Institute by the Leather Industry has to be considered in the best interests of the Institute. Attempts have to be made to get the students trained at the Institute of Leather Technology, absorbed in the Tanning Industry. It will be a wholesome sight to see the technicians passed out of the Institute taken in by not only the existing tanneries but also those that may be started in future. After a careful consideration of the subject the Committee recommends that even the South Indian tanners should be prepared to take in these students. It is recommended to the trade that the South Indian tanneries soaking not less than

[1] Report of the Panel on Leather and Leather Goods : Government of India, 1947.

50 hides or 100 skins per day should regularly employ leather technicians. It need not be overstressed that this would certainly help in the development of the industry. If the tanners are not found to act up to the suggestion it is recommended by the Committee that factory licences should be granted by the Labour department only to those tanneries that employ trained technicians.

DEGREE COURSE IN LEATHER TECHNOLOGY.

58. It stands to the well-merited pride of the Presidency that the first college in India imparting degree in Leather Technology has been started in Madras in 1945. Along with his studies in the fundamental principles of leather manufacture, the student should have good practice in, and knowledge of, the actual processes of leather manufacture. The Committee feels that the period is not long enough to give him enough practical work in tanning. It is therefore recommended that the course should be extended over three years, starting from the Intermediate standard, when the student will have more time to devote to the practical work in the tannery and laboratory work. It is understood that research work in the college has just been started and it is hoped that it will be extended greatly.

CHAPTER IX.

RESEARCH.

59. Research in industry may perhaps be described as an intelligent enquiry of the how and why of the several details of the industry. The old methods should be studied, explanation sought in the light of modern information, and changes suggested so as to result in an improvement in the quality of product and a lessening of the cost of its production. Apart from research in the fundamentals of tanning, research has to be done periodically in the several methods of leather manufacture that are being followed with a view to study the defects and difficulties in the existing methods and find improvements in the light of modern research carried on here and elsewhere to the benefit of the tanner and the industry. The Leather Trades Institute was the first Leather Institute in India where research work was started, as early as 1923. It is, however, regretted that this work was not enabled to be carried on continuously and progressively. Now that the Institute has been reorganized it is hoped that this work would be continued in the manner and to the degree necessary. In the opinion of the Committee it is felt that the following are a few of the important problems that have to be tackled very early in the interests of the industry.

CURING.

60. The methods of curing adopted in this country in the preparation of raw hides and skins for local consumption or for export to foreign countries have to be improved. Of late there have been several complaints regarding the quality of the raw hides and skins exported from this country. Letting alone the question of hides and skins for export, it is important that these should be cured and preserved properly for use in the local tanneries to maintain a standard of finished leathers to be able to compete with the foreign countries, besides getting a good market in the country itself. The several methods of curing practised at present should be thoroughly studied with a view to suggest improvements in them. The present method of drying has got its own defects. These have been dealt with in detail elsewhere. Experiments on better methods of drying may first be carried out on a small scale at the Institute of Leather Technology and methods which could easily be followed in the villages without elaborate equipment be worked out. This should be tried on a semi-commercial scale in the villages and the skins thus obtained should be sent to the different tanneries, for their opinion in addition to the results obtained in the Institute itself. These results should be published for the information of the tanners.

VEGETABLE TANNING MATERIALS.

61. The South Indian tanning industry is at present faced with the shortage of wattle bark from Africa. Unless methods of using other materials, preferably indigenous, are worked out the industry will be hit hard. Within the past twenty years a good deal of research work has been done on the study of vegetable tanning and on the properties of vegetable tanning liquors and their control. It is considered that a systematic study of each South Indian tanning material with reference to tannin content, acidity, salt content, fermentation, colour of liquor, and colour of leather, degree of penetration and fixation, and easiness of leaching, among other factors should be conducted. Apart from the study of each material, the study of the blends of the different materials should also be considered from the above points of view. The laboratory experiments have to be repeated in the tannery and the leathers manufactured have to be examined from the point of view of yield, utility for being dressed and finished into upper leathers, and for heavy leather tannages and all the important physical properties of the different leathers that could be manufactured determined. We are not unaware of the fact that this is a long range work. But we do believe that these results with regard to the different tanning materials of this Presidency, if presented to the tanners in an easily understandable and applicable form, may solve not a few of the difficult problems confronting the tanner. The time and energy spent on this work, it is deemed, will not be spent in vain. It is

also suggested that, along with these, the availability of these materials should also be collected in consultation with the Forest department. The possibility of the manufacture of tannin extracts from different materials and from different blends of different materials of the Province should be explored. The methods of using these extracts for the manufacture of different classes of leathers should also be worked out.

62. Though the South Indian tanning, as it is at present being carried on, has stood its test of time and has earned its own mark in the foreign countries, it is no reproach to say that there are still several points in the methods now used which can be studied from out of which improvements may be suggested which would help the tanner. The first point is that the time of duration of the different processes of leather manufacture should be looked into with a view to save time without deteriorating the quality of the finished leather. While doing this it is suggested that a systematic study of the South Indian tannage from the soak to the finished stage should be made on a scientific basis. Then those should be examined in the light of the latest information on the different processes and the methods have to be worked out to see if improvements on the lines suggested could not then be worked out. Better methods of utilizing tanning materials, than at present in vogue, in the South Indian tannage have also to be investigated.

63. There are several kinds of oils in this Presidency and it need not be pointed out that there is no standard specification for these. It is felt that a regular systematic study of all different oils available in this country should be made with a view to finding their suitability for the leather industry and also to find out better methods of utilizing them by means of sulphonation and studying the effect of the sulphonated oils on the quality of finished products, not ignoring the cost. It might be surprising to find that sulphonated coconut oil is used in America whereas here in the very country of its origin it does not seem to have been taken up seriously at all. A study of the Indian fish oils should also be taken up.

64. Another important problem is the question of finding out for the tanners a cheap, quick and efficient method of chrome tanning. A good deal of important work has been done on the composition and tanning properties of chrome liquors in the past two decades. With the abundance of cheap reducing agents in our country, research should be conducted to make use of these in full to prepare chrome liquors of the desired cost and efficiency and quantity for the different classes of leathers based on these results. The bag tannage, crude as it appears to be, is still being followed in several parts of the country. This may be studied systematically to see if this method could be used to quicken the tannage and if it could be used with better results for the tanning of leather as a cottage industry in the villages. The manufacture of vegetable sole leathers should be studied with a view to find out the

different blends of tanning materials that could be used for their manufacture, taking into consideration the availability of these materials, their cost, the duration of tannage and the final cost and quality of the finished leathers.

CENTRAL LEATHER RESEARCH INSTITUTE.

65. The Committee expresses its appreciation at the establishment of the Central Leather Research Institute at Madras. The foundation stone of the above Institute was laid in April 1948. The Indian Leather Research Association has been formed. It is hoped that all tanners and others connected with the leather industry of the Presidency will enlist as members of the association. The announcement of a donation of Rs. 2 lakhs by the Southern Indian Hide and Skin Merchants' Association is a proof of the interest the tanners take in the conduct of research work. It may be some time before the buildings of the Research Institute are completed and equipped. It is the recommendation of the Committee that meanwhile research work may be conducted by the Central Research Institute in the Institute of Leather Technology, Madras, so as to save valuable time. It is also suggested that in so taking up of research work, the tanners of the Presidency should be consulted with regard to the problems that have to be taken up immediately.

CHAPTER X.

RAIL TRANSPORT IN LEATHER INDUSTRY.

66. Rail transport plays a very important part in the leather industry of the Province, since the raw hides and skins and tanning materials have to be transported to the tannery and the tanned leathers from the tannery have again to be transported to the marketing centres. Before the last war, the transport of raw hides and skins were fairly regular. Wagons of hides used to arrive daily at railway centres, near the tanneries. At the present time there is shortage of wagons. Thus the raw hides purchased have to wait at the place of purchase for several weeks, before they are loaded. Transport also is not quick. Thus the tanners cannot be definite as to the probable date of receipt of the raw hides from a place in Northern India, although they had been purchased by their agents. This seriously interferes with their work and their production is not regular and is seriously restricted. The raw stock is subjected to severe damage in various ways. If the raw stocks do not arrive regularly and in time there cannot be any soakings but still the labourers have to be paid their wages on these days. This difficulty of transport applies to the tanning materials also. All these difficulties would be minimized, if a higher grade of priority of movement is granted to the raw hides and skins and tanning materials. Much damage is caused to the

wet salted hides during railway transport. The hides are put in railway wagons in bundles and those at the bottom come into greater contact with the iron and gives rise to strains. Those that are in contact with the sides of the wagon are not as badly affected as the former. During the pre-war days, a flooring of straw was spread in the wagon on which the hides were placed, thus mitigating this damage. This has been abandoned during and after the war. There is no proper ventilation for the wagons. Thus, during summer, much damage is caused to the hides due to appreciable putrefaction. This can be avoided by the supply of wood lined wagons for the transport of raw hides and skins. It is recommended that the railway wagons should be made readily and quickly available for the transport of raw hides and skins and tanning materials, that a higher grade of priority of movement should be granted to raw hides and skins and tanning materials, that these should be quickly transported and that wood-lined wagons should be supplied for the rail transport of raw hides and skins, as the length of period the raw hides and skins have to remain in these wagons under the different conditions of temperature, in different parts of the year, deteriorates the value of these goods when they arrive at the tannery.

TANNING MACHINERY.

67. Great hardship and difficulty is being felt in obtaining tanning machinery from abroad. There is also difficulty in obtaining supply of electric power, coal or other fuel for running power-driven machinery. It is recommended that the Director of Industries and Commerce may assist the tanners in obtaining these more quickly and promptly. With regard to machinery, steps have to be taken to get these manufactured locally in the Presidency. The possibility of taking up this work at the Industrial Engineering Workshop of the Department of Industries and Commerce was discussed. It is recommended that the Director of Industries and Commerce may explore the possibility of making at least the simple tanning machinery in his department.

CHAPTER XI.

COTTAGE TANNING.

68. *Present position.*—The tanning of hides and skins with indigenous tanning materials, i.e., vegetable tanning, has been in existence in this country from time immemorial. This industry has been practised in this Province by such people as Arundathyas, by heredity. As has been pointed out earlier, the fallen hides and skins are handed over to them by the owners of the cattle. In the days of old, when villages were self-sufficient units, the tanner was indispensable to the village in supplying all the needs in the shape of simple footwear, straps for bullocks, water bags, etc. Though the tanning industry has moved on near to towns and

cities, these village tanners are still carrying on the industry, though not full time, even in spite of severe competition from the bigger units. Even to this day, they purchase poor quality hides and tan them in their homes occasionally for ryots for a fixed charge. According to the 1931 census, there were 45,233 persons employed in the Province in this industry. [7] The village tanners are, however, not conversant with the modern improved methods and practices of tanning. These modern methods cannot be carried out for want of finance and space. Their ill-ventilated and ill-covered huts are almost tanneries filled with lime and tan pots. In a few cases, lime pots are in the open air and sun. They are able to get the raw hides from the village itself. No imported tanning material is used. Only indigeneous materials are used. Even these they do not buy from the market. They usually collect these materials from the trees in the area. The materials usually used are babul, konnam, avaram and others varying with the place. The bag tannage which is one of the oldest methods of tanning in this country is being carried on to a large extent in a few centres. The products of this tannage—Dhories—are retanned into sole leather. The manufacture of simple kinds of footwear is still being carried on satisfactory by hand-sewing with twine or leather. Their craftsmanship can be improved by demonstration and the industry can be enlarged by financial help and periodical technical advice.

TANNING DEMONSTRATION PARTIES.

69. Early in 1942, the Department of Industries and Commerce felt that the simple methods of tanning and leather goods manufacture should be developed in villages. A peripatetic tanning demonstration party was started to give demonstration in important centres. Twelve Harijan apprentices were selected in each centre and they were given training for a period of nine to twelve months in the simple methods of tanning and leather goods manufacture. The number of parties have been increased to four from 1947. The number of apprentices trained and the work turned out in the different demonstration centres during the years 1942–48 is shown below :—

TABLE XIX.

Number of students trained.	Number of leather goods manufactured.		Number of hides and skins tanned.	
	Footwear.	Others.	Hides.	Skins.
99	1,724	530	369	390
Total ..	2,254		759	

The duration of these parties may be increased to fifteen months.

Rural Problems in Madras: Monograph: S. Y. Krishnaswami, 1947.

SUGGESTIONS FOR FURTHER DEVELOPMENT.

70. The village is the place of origin of the fallen hides and skins. The flaying and curing also are done in the villages. Suggestions for the improvement of the methods of flaying and curing have been indicated above. If these improvements are demonstrated to the village flayers and tanners, they might easily and quickly take up to them. The only obstacle might be the want of finance. If the Harijans are able to thrive well in their industry, their social position will certainly improve. Co-opertive societies might be formed to carry on this work to a greater extent. Eventually, they will take their own place in the assemblage and curing of fallen hides and skins. Along with the flaying and curing of the village hides and skins, the beam house operations could be carried on in the villages by these people. These can then be pickled and sent to the organized tanneries in the towns. This will mean less space, labour, and organization for tanneries working the South Indian tannages. Branchs of this kind (only for beam house work) can be opened by big tanners in important centres. This will lead to decentralization of the industry. Even the tanners using the modern methods can take advantage of this. This might mitigate the bad quality of the fallen hides from the villages and also give occupation to the village tanners. This will also help in developing rural industries. Several areas in certain districts depend upon wells for irrigation. Kavalai hides are in great demand in these districts. At present, the fallen hides of the villages move on to the South Indian export tanneries located far away from the place of origin of these hides, tanned there and are bought from there by the villagers for this purpose. It may be computed that a quantity of 20–30 per cent of the East Indian kips exported to foreign countries is consumed locally. A large part of this is used for kavalais. The manufacture of kavalais can be carried on in big village centree by the village tanners. The workers can carry on this work, along with their agricultural work. It is understood that in a village near Sankarankoil in Tirunelveli district the manufacture of kavalai hides is started out of the tanning demonstration that was conducted at Sankarankoil. Chrome tanning of kavalai hides may also be worked in the same tanneries. The bag tannage of buffalo hides is at present being carried on by a few village tanners in very small quantities (not more than two at a time). All the tanners in a village can carry on this work on a larger scale by the formation of co-operative societies, in a common shed. These dhories will be readly purchased for the manufacture of sole leather.

71. Leather Trades schools might be started in two centres in the Presidency, one in the north and other in the south or, as an alternative industrial schools be opened for giving instructions in leather industry might be given grants and periodically supervised. The admission may be limited to boys of the Harijan class. They might be given monthly stipends. If the above suggestion is adopted, the present artisan course at the Institute of Leather

Technology may be abolished. It is the opinion of the Committee that this would be useful in the development of the cottage industries in the rural areas. The simple methods of tanning, with vegetable tanning materials available in the area, and the simple methods of chrome tanning and of leather goods manufacture may be imported as at present. Special attention might be given to tuition in the methods of flaying, curing, and pickling. It is the opinion of the Committee that this work can rightly be included in the Harijan welfare work in the Presidency.

CHAPTER XII.

TANNERIES, OTHER THAN THOSE MANUFACTURING ONLY SOUTH INDIAN TANNED LEATHERS.

72. The manufacture of all classes of leather with the aid of machinery and on modern lines, as apart from the South Indian tanning industry, is also being carried on in the Presidency. Of the important ones, two of these are located in Chingleput district and one in Tiruchirappalli district. They manufacture all classes of vegetable and chrome leathers, combination tanned leathers and oil tanned leathers. They employ about 3,000 workmen. The approximate quantities of the different class of leathers produced is given in *Annexure* 42. They consume only very little of local raw hides, the greater portion being imported from other presidencies and even other countries, chiefly Asian. Great portion of the leathers manufactured are exported to the Asian countries and even to the United Kingdom. The control of the several processes is being maintained regularly.

CHAPTER XIII.

GREATER CONTACT OF THE GOVERNMENT LEATHER TECHNICIANS WITH THE INDUSTRY AND TRADE.

73. Though the leather section of the Department of Industries and Commerce and the Leather Institute had been in existence for more than thirty years, there has not been sufficiently intimate contacts of the department with the tanners. This might not have been noticed or felt in the earlier years, when the South Indian tanning trade was carrying on its work quite peacefully and regularly. At the present time, when the industry is passing through bad days, due to shortage of materials, etc., and when attempts are being made for developing the industry on western lines and in accordance with the changing requirements of the

consuming markets, there must be a greater contact between the industry and the staff. The mere passage of correspondence between the two does not yield either quick or satisfactory results. The staff should meet the tanners periodically, at least once a month, and understand the phases and difficulties of the industry and try to help them. This kind of help is needed more in the development of the present day industry into more profitable and useful lines. It is recommended that the staff of the Institute may be permitted to be appointed as consulting technicians to tanneries and receive any honorarium that might be given provided that the head of the department is satisfied that any such arrangement does not interfere with the regular duties of the staff. This would lead to greater contact between the staff and the industry. This periodical and greater contact would surely guide the Institute in choosing of, or stressing on, important aspects of the industry, during the period of the training of the students at the Institute of Leather Technology.

CHAPTER XIV.

LEATHER GOODS—FOOTWEAR INDUSTRY.

74. From information obtained from the Madras Footwear Traders Association about the year 1946, it is learnt that there are about 112 dealers employing nearly 7,000 cobblers for the manufacture of footwear in the City of Madras. Besides this, there are about 300 cottage manufacturers, in the city and suburbs.[28] The important centres in the city are Perambur, Pudupet and Chetput. The mufassal centres are Vellore, Coimbatore, Palghat, Kozhikode, Cannanore, Mangalore, Tiruchirappalli, Mathurai, Dindigal, Tirunelveli, Guntur, Vijayavada and Rajahmundry.[28] The monthly production in the Madras City alone is about 30,000 pairs of gents' shoes and Afghan pattern sandals (Kabulis), 10,000 pairs of ladies' and children's shoes and about 7,500 pairs of chappals with bark soles.[28] The consumption of leather for these articles are roughly a pound of heavy sole leather per pair of gents' shoes and Afghan sandals, $\frac{3}{4}$ lb. of light sole leather for ladies' and children's shoes and 1 lb. of light sole leather for chappals.[28] There are imports of boots and shoes and of bags and trunks and other leather manufactures into the Presidency. (See *Annexure* 43. In the case of imports, by sea, of boots and shoes, the classification is as follows: (1) All leather, (2) rubber soled with canvas upper, (3) rubber soled with leather upper, (4) all rubber and (5) other materials. From these figures, it is seen that the imports, which were mostly from the United Kingdom and Czechoslovakia, have decreased from 21,421 pairs 1936-37 to 4 pairs in the year 1946-47. In the coastal trade, it has increased from 15,680 pairs in 1932-33 to 258,879 in 1938-39 with a peak in the year 1936-37. The average imports of

[28] Private information from the Madras Footwear Traders Association.

bags and trunks for the three years 1936–37, 1937–38 and 1941–42 was of the value of Rs. 7,434. The average imports of leather manufactures—other sorts during the same period was of the value of Rs. 22,237. Along with these there were also exports of these from the Presidency details of which are given in the *Annexures* 44, 45 *and* 46. The exports of boots and shoes increased from 57,788 pairs in 1936–37 to 132,025 pairs in 1941–42 when again it fell to 41,794 pairs in 1946–47. The important places to which these were exported were Aden, Ceylon, Zanzibar, Straits, Sierra Leone and Burma. In the coastal trade it increased from 2,590 pairs in 1932–33 to 15,132 pairs in 1935–36 after which it declined in volume. The exports of leather manufactures—other sorts increased from Rs. 78,102 in 1937–38 to Rs. 3,87,782 in the year 1946–47.

75. The urban population of the Presidency according to 1941 census is about 79 lakhs and the rural population about 415 lakhs.[1] On the basis that 5 per cent of the total population wear footwear the quantity of footwear required in the Presidency would be about 25 lakhs. If only the urban population is taken into account and on the basis that 30 per cent of the population use footwear then about 24 lakhs of footwear would be required. No statistics other than what is given below regarding the actual production of footwear is available. A rough estimated annual production of the quantities of different kinds of footwear manufactured in the districts and the city are given below :—

TABLE XXI.

	City.	Districts.
Shoes	360,000 pairs ..	216,000 pairs.
Slippers and Chappals ..	90,000 ,, ..	432,000 ,,
Ladies and Children Shoes.	120,000 ,, ..	864,000 ,,
Total City and Districts ..		2,082,000 pairs.

TABLE XXII.

	Soles weight in lb.	Upper in square feet.	Lining in square feet.	Grindery in rupees.
Shoes ..	1,152,000	1,440,000	576,000	2,88,000
Slippers ..	828,000	828,000	828,000	2,76,000
Chappals ..	1,431,000	1,431,000	715,500	4,77,000
Total ..	1,528 (Tons)	3,699,000	2,119,500	10,41,000

[1] Rural problems in Madras: Monograph: S. Y. Krishnaswami, 1947.

76. The footwear manufactured at present may broadly be divided into the indigenous types and western types. The indigenous types are all hand-made. Of these about 80 per cent are machine stitched. The hand-stitched shoes are still very popular in the villages. They are usually thin bottomed because of the rather loose country roads.

77. The western type footwear or shoes are at present made by hand to a large extent though machinery is also used in the trade. The industry is therefore, still preponderently, hand-worked and run almost on a cottage basis. This industry is mainly manned by the members of the Arundhatya community. The marketing is done through dealers and middle men. The wholesale dealers pay advances to the workers in cash or kind and the workers do not in many cases obtain the proper values for their goods and are not able to make much profit. It is no exaggeration to say that there is a good deal of exploitation by the shoe dealers in this industry. In short, the industry is not well organized and the present unsatisfactory position of the workers is a real stumbling block in the progress and development of this industry. The workers are not rich enough to buy leathers in large quantities and stock them or to stock the goods manufactured until they get a decent price. Almost all of them have a day to day living. Organized methods of increasing the production by these workers jointly might develop the industry. A few co-operative societies have been started by the Co-operative Department in different parts of the Presidency but the number is far inadequate.

78. There is only one factory in Madras where footwear is manufactured by machinery. It produces about 70,000 pairs of footwear per annum. The introduction of hand-worked footwear machinery will certainly increase the output in the towns and the quality of the footwear produced will also be improved and will easily command better sale. It is with the object of training technicians in the hand-worked and power-driven footwear machinery that the Certificate course in Leather Goods manufacture was started at the Institute of Leather Technology.

CHAPTER XV.

RECOMMENDATIONS AND CONCLUSION.

79. *Recommendations.*—(1) That arrangements must be made by the Veterinary Department to apply the researches, carried on the infestation of cattle with warbles and ticks at the Imperial Veterinary Research Institute at Mukteswar, on a larger scale throughout the Presidency, to save the livestock from these damaging pests and the skin and hide wealth of the Province from considerable loss.

(2) That the method of flaying should be greatly improved.

(3) That a small flaying school should be started for training a few veterinary inspectors and sanitary inspectors of the municipalities in the correct method of flaying, by practical demonstration and training in flaying.

(4) That flaying should be permitted to be carried on in municipalities and panchayat boards only by licensed flayers.

(5) That the grant of licences be left to the municipalities based entirely on the recommendations of the Inspectors.

(6) That the methods of salt curing be improved.

(7) That five curing yards might first be opened in important centres, preferably Tiruchirappalli, Coimbatore, Vijayavada, Vizianagram and Madras where best methods of salting may be demonstrated.

(8) That experiments be carried on in the method of barn drying.

(9) That the possibility of introducing brining and salting methods be studied.

(10) That the methods that are being recently used as a result of modern investigations in the several tropical countries, be repeated here with any changes or improvements found necessary and that this problem may well be taken up as an all-India question.

(11) That if countries other than the United Kingdom are properly encouraged to enter the East India tanned hides business directly with Madras, the position of the Madras hide tanning industry will definitely improve.

(12) That, unless other markets for the East India tanned skin trade are sufficiently developed, the position of the East India tanned skin trade will not appreciably improve.

(13) That the period and cost of the South Indian tanning must be sought to be lessened.

(14) That the study of the different soaking agents with reference to the quickness of soaking, the quality and yield of leather obtained and the cost may be taken up.

(15) That the question of shortening the period of liming by use of sharpeners, be considered.

(16) That the fleshing and scudding by machine will be helpful to the industry.

(17) That the method of, and materials used for, South Indian tanning might be improved.

(18) That the quantity and quality of oil used has to be carefully regulated.

(19) That, if the suggestions to shorten time, labour and cost of material be adopted, the cost of tanning might probably be reduced.

(20) That the practice of adulteration should be completely stopped to maintain the prestige and reputaion of the South India leathers earned by the honest work of the tanners of the earlier days.

(21) That the Trade Associations concerned must be left to take effective steps to stop this undesirable practice before the Government consider the advisability of taking any measure in this direction.

(22) That a survey should be made of the tanning materials available in the Presidency and that this has to be lined up with a complete study of each tanning material, with reference to latest researches on the mechanism and control of vegetable tanning processes.

(23) That large areas may be selected and facilities be given to ryots to grow avaram plantations on a large scale.

(24) That attempts should be made to collect the barks and grade them, or sell them or despatch them to tanners on a wholesale basis.

(25) That there should be periodical analyses of the barks of different ages growing on different soils and of bark from shrubs of different sizes.

(26) That arrangements should be made for easy and complete marketing of these barks, so that the ryots may be attracted towards this cultivation.

(27) That attempts might be made to consider the possibility of the avaram bark being grown along with some other remunerative crops, without deteriorating the production of the bark either in quality or quantity.

(28) That the cost of stripping the bark, as at present being carried on by beating the twigs with wooden mallets, should be improved and that the possibility of using a machine, hand-worked or power driven, that could strip the bark more quickly and easily and therefore far more economically should be explored.

(29) That the possibilities of intensifying exploitation and reducing cost of konnai bark need investigation.

(30) That emphasis is laid on the need to have some system of grading the myrabolan nuts based on the tannin content, before sale to the tanners.

(31) That the Government should sanction the scheme for the large scale plantation of wattle in the Palnis and the Nilgiris and get the work started immediately taking into account that bark could not be obtained from a plantation until it is eight years old.

(32) That the chemical research work regarding the utility of the bark from its different aspects should be conducted with reference to the first plantation and follow it with the age of the plantation.

(33) That, since wattle bark is used all over India, it is suggested that this piece chemical research work may be taken up by the Central Leather Research Institute to be started at Madras.

(34) That the possibility of the use of *Hopea parviflora* in the South Indian tannage be explored.

(35) That the possibility of the use of *Terminalia arjuna* in the production of cheap classes of upper leathers be determined.

(36) That the possibility of the use of *Dhawa sumach* in South Indian tannage be studied.

(37) That work should be carried on to determine all the manners in which Divi Divi could be used in the tanning industry and that the possibility of manufacturing an extract of this material should be explored.

(38) That the possibility of the use of syntans, especially those that had been prepared from naturally occurring indigenous raw materials, in the South Indian tannages at the present moment of shortage of wattle bark be taken up for study immediately.

(39) That the retanning and finishing of East Indian tanned leather should be developed by demonstration and that in the first instance two centres should be opened by Government at Madras and Vijayavada for this purpose.

(40) That the expansion of the manufacture of sole leathers, including retannage of Dhori hides, be encouraged.

(41) That research should be taken in working out an efficient method of tanning and dressing buff leather for belting.

(42) That roller skins are a necessary class of leather and its manufacture should be developed and placed on a firm basis.

(43) That the recommendation of the Government of India Panel on Leather and Leather Goods be supported and that the Government of India be requested to impose a heavy duty on imported roller skins to protect the roller skins industry of India.

(44) That there is a great scope for the enlargement of the chrome tanning industry, in its several aspects, in this Presidency.

(45) That the manufacture of chrome kavalais, chrome and waxed soles can be carried on as a cottage industry.

(46) That the State should help in obtaining better markets for all classes of finished leathers in this Province, that the Indian Trade Commissioners in the several countries be requested to help in this matter and that a Leather Development Officer for the Province, quite apart from the present staff of the Department of Industries and Commerce, be appointed for this purpose.

(47) That intensive training in practical tannery work should be imparted to the Diploma students at the Institute of Leather Technology and that attempts should be made to get different batches of students specialized in different classes of work pertaining to leather manufacture.

(48) That the intended legislation regarding the apprenticeship in factories be passed very early.

(49) That the present certificate at the Institute of Leather Technology in Leather Goods Manufacture of three years duration be altered to a two years course immediately and that the present certificate course at Institute of Leather Technology in Leather Goods Manufacture of three years be changed into a Diploma course of two years after the equipment and building is ready.

(50) That the Tannery Operative course and part-time courses should be started at the Institute of Leather Technology in July 1949.

(51) That students from other Provinces may be admitted into the Institute of Leather Technology.

(52) That more than one Institute of Leather Technology is not needed for the Presidency at present.

(53) That tanners be requested to take in the trained technicians in their tanneries and that if they fail to do so, factory licences should be granted by the Labour Department only to those tanneries that employ trained technicians.

(54) That the present course of two years in the Alagappa Chettiar College of Technology, University of Madras, for the award of B.Sc. Degree in Leather Technology be increased to three years starting from the Intermediate standard.

(55) That researches be conducted on the methods of curing (drying and wet salting) with a view to improve the methods.

(56) That a systematic study of the several South Indian tanning materials and of blends of the materials be made in the light of recent work on vegetable tanning.

(57) That a systematic study of the South Indian tannage be conducted with a view to improve the present methods.

(58) That the possibility of the manufacture of tanning extract from tanning materials and of blends of tanning materials be explored.

(59) That a study of the oils, including fish oils, in the Presidency, should be made with a view of their use in the leather industry.

(60) That methods of preparing cheap and efficient chrome liquors be studied.

(61) That the principles and processes of the bag tannage be studied.

(62) That the indigenous tanning materials suitable for the manufacture of sole leathers be determined.

(63) That the Central Leather Research Institute be requested to start the conduct of research work at the Institute of Leather Technology even before the buildings of the Research Institute are completed and equipped, so as to save valuable time.

(64) That railway wagons should be made readily and quickly available for the transport of raw hides and skins and tanning materials, that a higher grade of priority of movement be granted to raw hides and skins and tanning materials and that wood lined waggons should be supplied for the rail transport of raw hides and skins.

(65) That the Director of Industries and Commerce may explore the possibility of making at least simple tanning machinery in his department.

(66) That there is great scope for the development of the cottage tanning industry in the villages and that the development of this industry could be included in the Harijan welfare work of the Province and in the general development of the cottage industries in the rural areas.

(67) That the methods for improved flaying and curing; of pickling; of the manufacture of bark and chrome kavalai leathers; and of chrome and waxed soles be intensively demonstrated in the village centres and that this work should be encouraged to be followed as a cottage industry along with their agricultural work, through the formation of co-operative societies.

(68) That the present duration of the Peripatetic Demonstration parties by the Department of Industries and Commerce at each centre be increased to fifteen months.

(69) That leather trades schools might be started in two centres in the Presidency, one in the north and the other in the south; that an alternative industrial schools opened for giving instructions in leather industry, might be given grants and be periodically supervised.

(70) That there should be greater and periodical contact of the Government Leather Technician with the industry and trade in the best interest of the development of the industry and trade and training of leather technicians at the Institute of Leather Technology.

(71) That the footwear industry is not well organized and the present unsatisfactory condition of the workers is a real stumbling block in the progress and development of this industry, and that organized methods of increased production by these workers jointly, through the co-operative societies, might develop the industry.

(72) That the introduction of hand-worked machinery in the footwear industry should be taken up very early, as it will certainly increase the output of the production and as the quality of the footwear produced will also be improved and will easily command better sale.

CONCLUSION.

80. The Committee cannot conclude without placing on record its high appreciation of the services rendered by Mr. K. Seshachalam Choudary, Principal, Institute of Leather Technology, as its Secretary. His deep knowledge and wide experience as a Leather Chemist and Expert, his extensive and intimate knowledge of the problems and difficulties of the tanning industry, the valuable researches which he has been arduously carrying on for many years, have all been of immense use to the Committee in its work. The Committee wants sincerely to thank him for these services and for the comprehensive report which he has made it possiblbe for the Committee to submit to the Government. The Commiftee also desires to express its warm appreciation of the intelligent and hard work done by Mr. N. Subrahmanyam, the Special Officer. Thanks are due to the other members of the staff as well.

M. MAHOMED ISMAIL,
Chairman.

K. SESHACHALAM CHOUDARY,
Secretary.

ANNEXURE 1.

Production of slaughtered sheep and goat skins in the principal countries of the world.

Countries.	Goat and sheep Population (1935).	Annual skin production.	Percentage of skins to goat and sheep population.	Percentage of skins production to world's total.
	LAKHS.			
India*	1,037·8	378·0	36·4	18·9
United States of America	601·0	218·6	36·4	11·0
Australia	1,131·9	188·6	16·7	9·4
New Zealand	291·2	130·3	44·7	6·5
United Kingdom	440·1	111·0	25·2	5·6
Italy	106·6	68·2	64·0	3·4
France	108·8	68·1	62·6	3·4
Argentina	449·8	29·1	15·1	3·4
Union of South Africa	420·4	29·1	6·9	1·5
Turkey	219·5	27·6	12·6	1·4
Germany	109·7	17·5	16·0	0·9
Canada	26·4	17·2	65·2	0·9
Rumania	122·5	15·7	12·8	0·8
Algeria	93·4	11·1	11·9	0·6
Uruguay	154·3	10·7	6·9	0·5
Burma	3·5	2·8	80·0	0·1
Other countries	..	632·1	..	31·7
		1,994·7		100·0

Production of slaughtered hides in different countries of the world.

Country.	Cattle population.	Annual production of hides.	Percentage of hides to cattle population.	Percentage of hides production to world's total.
	LAKHS.			
United States of America	664	243	36·6	17·8
Canada	88	19	21·6	1·4
Argentina	309	60	19·4	4·4
Brazil	405	42	10·4	3·1
S. American countries	347	39	11·2	2·9
U.S.S.R.	565	247	43·7	18·1
Germany	201	83	41·3	6·1
France	158	77	48·7	5·7
Poland	101	35	34·7	2·6
Italy	72	30	41·7	2·2
United Kingdom	86	29	33·7	2·1
Other European countries	458	118	25·8	8·7
Australia	139	25	18·0	1·8
New Zealand	43	14	32·6	1·0
Africa	227	21	9·2	1·5
Other Asiatic countries	118	17	14·4	1·2
India†	2,235	257†	11·5	18·8
Burma	61	8	13·1	0·6
	6,277	1,364	21·7	100·0

* Besides this, India produces about 67 lakhs of marketable goat and sheep skins from dead animals.

† The number includes fallen hides also. India's position in the international market is unique and it is the largest producer as well as exporter of hides and skins in the world.

ANNEXURE 2.

Statement showing the livestock in each district in the Madras Province as ascertained by the census held in December 1944.

COW.

District.	Number.	In lakhs.	Per cent on total.
Vizagapatnam	964,548	9·64	5·89
East Godavari	760,814	7·61	4·65
West Godavari	521,470	5·21	3·18
Krishna	423,106	4·23	2·58
Guntur	420,406	4·20	2.56
Kurnool	333,223	3 33	2 04
Bellary	378,503	3·78	2·31
Anantapur	516,285	5·16	3·15
Cuddapah	291,511	2·91	1·78
Nellore	606,525	6·06	4·31
Chingleput	676,930	6·77	4·75
South Arcot	1,084,252	10·84	6·63
Chittoor	854,056	8·54	5·22
North Arcot	981,245	9·81	6·00
Salem	1,375,521	13·75	8·41
Coimbatore	1 075,720	10 75	6·58
Tiruchirappalli	863,565	8·64	5·28
Tanjore	974,987	9·75	5·96
Mathurai	749,507	7·49	4·58
Ramnad	542,169	5·42	3·31
Tirunelveli	527,709	5·28	3·23
Malabar	836,284	8·36	5·12
South Kanara	555,863	5·56	3·32
Nilgiris	33,938	0·34	0 21
Madras	6,777	0 68	0·42
Total ..	16,354,914	163 55	

BUFFALO.

Vizagapatnam	554,927	5·55	8·80
East Godavari	331,097	3·31	5·26
West Godavari	353,840	3·54	5·62
Krishna	516,122	5·16	8·21
Guntur	752,203	7·52	11·96
Kurnool	294,138	2·94	4·67
Bellary	142,261	1·42	2·26
Anantapur	174,476	1·74	2·77
Cuddapah	269,513	2·69	4·29
Nellore	537,473	5·37	8·55
Chingleput	187,475	1·87	2·98
South Arcot	144,494	1·44	2·29
Chittoor	170,633	1·70	2·71
North Arcot	137,106	1·37	2·19
Salem	171,353	1·71	2·73
Coimbatore	196,170	1·96	3·12
Tiruchirappalli	201,498	2·01	3·20
Tanjore	247,346	2·47	3·93
Mathurai	145,048	1·45	2·30
Ramnad	114,502	1·14	1·82
Tirunelveli	160,456	1·60	2·55
Malabar	225,375	2·25	3·58
South Kanara	229,409	2·29	3·65
Nilgiris	17,884	0·18	0·28
Madras	5,526	0·06	0·09
Total ..	6,289,323	62·9	

District.	Number.	In lakhs.	Per cent on total.
SHEEP.			
Vizagapatnam	626,139	6 26	5·92
East Godavari	58,1 8	0·58	0 55
West Godavari	106,060	1·06	1·02
Krishna	192,866	1·92	1·82
Guntur	518,115	5·18	4·90
Kurnool	471,946	4·71	4·46
Bellary	272,531	2·72	2 58
Anantapur	799,147	7·99	7·56
Cuddapah	407,737	4·08	3 86
Nellore	757,289	7·57	7·16
Chingleput	266,185	2.66	2·52
South Arcot	415 310	4·15	3·93
Chittoor	581,515	5 81	5·50
North Arcot	537,875	5·38	5·09
Salem	1,013,973	10 13	9·58
Coimbatore	935,701	9·36	8·85
Tiruchirappalli	870,009	8·70	8·22
Tanjore	170,032	1 70	1·61
Mathurai	347,651	3·48	3·29
Ramnad	612,789	6·13	5·8
Tirunelveli	598 887	5·99	5·67
Malabar	6,602	0·07	0·06
South Kanara	63	..	..
Nilgiris	2,451	0·02	0·017
Madras	168	..	..
Total ..	10,569,189	105·7	
GOATS.			
Vizagapatnam	380,672	3·80	6·25
East Godavari	121,250	1·21	1·99
West Godavari	100,117	1·00	1·66
Krishna	168,428	1·68	2·77
Guntur	176,599	1·76	2·99
Kurnool	212 699	2·12	3·49
Bellary	163,898	1·64	2·69
Anantapur	255,578	2·55	4·20
Cuddapah	175,843	1·76	2·89
Nellore	263,580	2 64	4·33
Chingleput	174,253	1·74	2·86
South Arcot	323,638	3·24	5·32
Chittoor	344,875	3·45	5·67
North Arcot	210,237	2·10	3·45
Salem	613 704	6·14	10 08
Coimbatore	366,186	3·66	4·65
Tiruchirappalli	495,604	4·96	8·14
Tanjore	388,606	3·89	6·38
Mathurai	340 370	3·40	5·59
Ramnad	268,326	2 68	4·41
Tirunelveli	291,299	2·91	4·78
Malabar	265.032	2·65	4·35
South Kanara	27,342	0·27	0·45
Nilgiris	4,883	0·05	0·08
Madras	576	0·01	..
Total ..	6,087,650	60 88	

ANNEXURE 3.

Slaughtered in the various municipalities and panchayats.

Name of or slaughter-house.	1936-37.	1937-38.	1938-39.	1939-40.	1940-41.	1941-42.	1942-43.	1943-44.	1944-45.	1945-46.	1946-47.	1947-48.
COWS AND BULLOCKS AND BULLS.												
1 Vijayavada ..	1,178	1,012	1,062	1,127	867	825	1,109	917	817	1,132	1,286	1,207
2 Tanjore ..	1,238	1,336	1,078	395	779	780	..	1,055	1,059	1,004	1,012	854
3 Hospet ..	348	892	1,009	967	911	958	1,182	1,097	694	692	968	1,051
4 Ootacamund ..	4,644	4,676	4,585	5,345	6,007	6,515	7,804	8,366	9,104	8,455	8,128	7,521
5 Kodaikanal ..	1,188	1,573	905	1,630	2,500	2,200	1,942	2,138	2,117	2,029	1,565	1,222
6 Tuticorin ..	410	392	377	389	413	339	302	321	360	461	343	362
7 Nandyal ..	248	..	..	227	255	271	221	364	314	240	286	353
8 Mathurai ..	2,407	2,159	2,282	2,457	2,401	1,980	1,980	2,193	3,117	4,293	4,355	3,868
9 Vizianagram ..	..	92	189	804	670	908	1,040	1,140	1,160	1,112	1,150	..
10 Coimbatore ..	..	1,514	1,576	2,005	1,965	1,833	3,528	3,379	946	4,084	3,697	4,067
11 Tellicherry ..	..	485	541	810	1,382	1,788	1,711	2,262	1,254	1,476	1,793	1,522
12 Adoni ..	..	2,993	3,044	3,605	3,298	3,196	3,788	2,590	940	177	94	75
13 Tiruchirappalli.	..	..	6,274	6,725	5,344	4,634	6,356	4,046	2,860	5,089	4,528	4,635
14 Masulipatnam	..	..	286	356	349	357	365	319	188	135	239	332
15 Guntur ..	..	..	439	464	430	491	525	..	..	..	..	..
16 Palacole ..	..	..	..	577	500	916	1,686	1,454	1,447	2,250	..	..
17 Bodinayakkanur.	..	..	..	639	639	645	249	271	223	165	408	401
18 Perambur ..	..	..	..	..	9,655	10,303	10,461	11,299	11,005	12,740	15,945	14,530
19 Kakinada ..	..	..	..	..	..	1,878	2,573	2,716	2,540	3,227	2,781	..
20 Karur	..	..	..	..	..	422	588	..	428	136	157	267
21 Vizagapatnam.	..	..	..	..	..	..	175	143	191	238	335	324
22 Eluru ..	..	..	..	..	..	..	856	1,750	1,460	1,863	1,667	1,764
23 Tirupputtur ..	..	..	..	..	..	..	384	425	360	428	500	415

24 Tindivanam ..	..	..	..	..	..	..	1,406	1,777	1,980	1,699	1,729	1,390
25 Anakapalle ..	..	..	..	..	..	..	210	105	71	31	32	136
26 Bellary ..	..	..	..	..	..	..	..	2,406	1,472	9 2	993	762
27 Periyakulam ..	..	..	..	..	..	..	..	144	570	860	1,458	440
28 Kurnool ..	..	..	..	..	..	..	..	..	2,010	1,988	2,185	2,175
29 Cannanore ..	..	..	..	..	..	..	..	..	1,290	1,352	1,353	..
30 Villipuram ..	..	..	..	..	..	..	..	..	1,409	1,175	1,265	2,019
31 Tenali ..	..	..	..	..	..	..	..	..	1	..	15	18
32 Nagapattinam.	..	..	..	..	..	..	..	..	251	320	435	306
33 Hindupur ..	..	..	..	..	..	..	..	..	..	427	701	456
34 Mangalore ..	..	..	..	..	..	..	..	..	..	..	1,334	1,087
35 Nellore ..	..	..	..	..	..	..	..	..	..	..	..	47

BUFFALOES.

1 Vijayavada ..	1,315	1,199	1,200	1,256	926	1,031	1,406	1,514	1,244	1,448	1,170	1,102
2 Hospet ..	16	11	12	22	18	33	..	91	98	47	53	33
3 Vizianagram ..	..	205	200	1,840	1,504	1,910	2,076	1,822	1,309	2,106	2,555	..
4 Adoni ..	..	475	462	386	173	1,411	840	601	539	579	515	635
5 Tiruchirappalli.	..	..	531	736	590	549	951	1,809	1,755	1,235	1,823	772
6 Masulipatnam.	..	..	208	191	254	246	305	302	180	218	137	275
7 Guntur ..	..	..	588	794	649	571	576	..	..	..	..	..
8 Tanjore ..	..	..	..	392	..	..	..	115	213	315	164	49
9 Palacole ..	..	..	..	700	540	230	613	262	402	540	408	..
10 Perambur ..	..	..	..	..	9,004	9,567	11,321	14,859	12,603	15,392	12,242	11,784
11 Karur ..	..	..	..	..	..	18	23	.	..	..	..	..
12 Vizagapatnam.	..	..	..	..	..	..	2,288	2,309	2,467	2,920	2,420	2,581
13 Eluru ..	..	..	..	..	..	..	717	2,350	1,966	1,255	1,379	1,330
14 Tindivanam ..	..	..	..	..	..	..	23	25	7	12	8	2
15 Kakinada ..	..	..	..	..	..	..	..	88	834	832	801	..
16 Tellicherry ..	..	..	..	..	..	..	..	32	69	19	37	48
17 Cannanore ..	..	..	..	..	..	..	..	..	4	177	59	..
18 Villipuram ..	..	..	..	..	..	..	..	..	383	374	438	997
19 Tenali ..	..	..	..	..	..	..	..	..	394	481	424	370
20 Coimbatore ..	..	..	..	..	..	..	..	..	95	89	136	70
21 Bellary ..	..	..	..	..	..	..	..	..	..	..	..	84

Name of municipality or slaughter house.	1936-37.	1937-38.	1938-39.	1939-40.	1940-41.	1941-42.	1942-43.	1943-44.	1944-45.	1945-46.	1946-47.	1947-48.
						SHEEP.						
1 Vijayavada ..	27,292	37,686	34,985	34,792	38,039	43,826	45,988	51,205	45,583	49,238	43,143	48,755
2 Chittoor ..	8,945	6,247	7,730	8,078	6,744	1,046	11,256	10,897	9,510	9,782	10,262	8,463
3 Tanjore ..	19,717	17,817	13,824	34,109	8,075	30,317	..	26,574	35,703	12,823	15,754	10,786
4 Hospet ..	7,531	4,761	3,130	6,025	5,121	4,921	6,198	5,428	5,814	5,035	6,000	7,143
5 Kancheepuram.	16,541	21,179	16,192	21,560	17,743	19,077	19,019	21,684	18,564	15,632	16,639	14,438
6 Cuddalore ..	6,005	6,209	6,321	5,807	6,087	3,763	3,281	5,477	3,471	3,843	3,500	..
7 Tiruvannamalai.	8,256	8,001	4,192	6,176	6,330	5,115	3,711	6,426	4,561	3,219	3,421	1,030
8 Palacole ..	1,929	5,000	4,014	3,920	3,542	5,231	78,11	6,322	4,868	5,475	5,441	4,774
9 Ootacamund ..	20,700	20,160	20,212	20,186	24,259	27,750	31,136	26,355	28,906	26,095	20,240	18,873
10 Kodaikanal ..	1,682	1,497	783	2,194	3,143	2,902	3,225	3,767	3,453	2,477	2,128	1,795
11 Tuticorin ..	8,426	13,822	9,647	17,031	14,685	15,360	14,440	7,533	13,411	18,157	10,105	12,059
12 Tadpatri ..	2,585	3,382	2,570	3,489	1,819	2,648	2,265	2,975	3,338	4,805	3,007	2,330
13 Nandyal ..	6,018	..	..	2,121	3,730	4,237	3,351	5,061	5,527	5,803	5,637	4,485
14 Mathurai ..	93,557	107,535	118,590	124,770	117,590	116,431	132,024	144,637	89,124	124,3[illegible]7	119,049	96,977
15 Tirunelveli ..	..	14,161	10,486	8,217	6,011	3,867	5,485	8,960	13,181	12,732	10,496	7,553
16 Rajahmundry.	..	12,316	13,524	10,878	11,863	10,816	16,298	12,999	..	..	..	..
17 Vizianagram ..	..	2,569	5,271	4,285	4,587	4,211	4,798	5,111	4,580	3,986	4,341	..
18 Coimbatore ..	..	58,543	64,913	75,255	52,779	56,050	91,213	81,350	82,056	99,950	34,229	60,652
19 Adoni ..	..	10,452	9,443	8,065	4,471	6,773	9,205	8,604	10,327	14,308	10,695	10,610
20 Tiruchirappalli.	..	..	81,598	85,971	74,703	82,274	107,729	109,325	99,178	106,589	99,083	94,176
21 Masulipatnam	..	..	15,067	11,490	14,590	14,676	21,234	18,186	15,526	18,275	17,307	15,097
22 Tiruppur ..	..	..	13,165	14,490	11,701	12,793	13,558	17,200	16,201	15,788	18,731	15,493
23 Guntur ..	..	..	21,209	23,237	23,356	24,072	30,062	..	..	..	..	..
24 Chingleput ..	..	..	3,417	3,562	4,218	5,343	6,135	5,872	3,486	2,842	3,649	3,334
25 Anantapur ..	..	..	..	5,201	5,130	5,482	8,069	8,447	8,018	6,412	5,944	..

26 Bodinayakkanur.	..	..	..	1,023	952	3,320	2,228	3,830	2,682	2,776	2,696	1,747
27 Udamalpet ..	..	..	..	9,250	9,125	8,672	7,162	7,790	6,970	5 667	6,427	..
28 Ramnad ..	..	..	..	4,123	4 338	3,385	4 122	6 550	4,918	3,763	4,167	3,065
29 Perambur ..	..	..	..	..	352,437	223,036	282,112	363,148	318,144	309,239	346,482	309,793
30 Dharapuram ..	..	..	..	..	4,856	4,440	5 614	7,653	8,918	7,606	5,839	..
31 Srirangam ..	..	..	..	..	2,138	1,557	2 863	3,774	1,939	1,095	790	674
32 Kakinada ..	..	..	..	..	..	10 825	13 792	15,624	15 871	13,807	12,521	..
33 Karur ..	..	..	..	..	..	8,472	9,750	..	9 736	7,371	10,872	33,587
34 Kumbakonam.	..	..	..	..	..	4,915	5,695	5,163	7,564	5 166	..	..
35 Vizagapatnam	..	..	..	..	..	..	21,601	26,251	5,116	8,416	6,05[illegible]	6 988
36 Karaikudi ..	..	..	..	..	..	..	9 577	8,708	6 584	5,248	6,221	4 432
37 Eluru ..	..	..	..	..	..	..	12 948	19,708	17,253	11,191	12,[illegible]64	13,039
38 Udipi ..	..	..	..	..	..	..	275	339	466	147	96	122
39 Tirupputtur ..	..	..	..	..	..	..	8,000	9,351	1,234	10,530	11,819	12,400
40 Tin ivanam ..	..	..	..	..	..	..	4 525	4,461	2,911	1,184	778	1,950
41 Anakapalle ..	..	..	..	..	..	..	5 114	2,009	3,413	3,375	2,902	4 491
42 Tellicherry ..	..	..	..	..	..	..	2,287	83	2,268	1,805	3,115	2,488
43 Peddapuram ..	..	..	..	..	..	..	..	1,611	1,442	754	1,435	1,860
44 Mayuram ..	..	..	..	..	..	..	..	1,007	1,498	737	326	759
45 Bellary ..	..	..	..	..	..	..	..	23 963	17 083	16,390	13,496	17,542
46 Gudiyattam ..	..	..	..	..	..	..	..	9,043	6,584	6,381	9,752	6,686
47 Periyakulam ..	..	..	..	..	..	..	..	2,298	5 248	4,989	5,693	4,779
48 Mannargudi ..	..	..	..	..	..	..	..	4,430	3 039	7,469	982	1,604
49 Kurnool ..	..	..	..	..	..	..	..	..	15,737	9,824	6,337	20,780
50 Cannanore ..	..	..	..	..	..	..	..	..	621	862	4,349	..
51 Villipuram ..	..	..	..	..	..	..	..	..	3,564	3,973	4,610	5,106
52 Tenali ..	..	..	..	..	..	..	..	..	5,015	5,660	7,193	8,651
53 Tiruvarur ..	..	..	..	..	..	..	..	..	830	215	229	134
54 Nagapattinam.	..	..	..	..	..	..	..	..	6,151	4,434	5,404	4,451
55 Walajahpet ..	..	..	..	..	..	..	..	..	2,416	2 415	..	1,965
56 Gudivada ..	..	..	..	..	..	..	..	..	..	6,333	5,[illegible]20	5,237
57 Palamcottah ..	..	..	..	..	..	..	..	..	..	7,842	8,126	4,562
58 Manamadura.	..	..	..	..	..	..	..	..	..	290	1,235	1,626
59 Palghat ..	..	..	..	..	..	..	..	..	..	8,595	7,029	5,818
60 Mangalore ..	..	..	..	..	..	..	..	..	..	..	949	3,261
61 Vaniyambadi..	..	..	..	..	..	..	..	..	..	..	14,841	6,693
62 Hindupur ..	..	..	..	..	..	..	..	..	..	..		2,111
63 Nellore ..	..	..	..	..	..	..	..	..	..	..	..	8,727

Goats slaughtered in the various municipalities and panchayats.

GOATS.

Name of municipality or panchayat. (1)	1936-37. (2)	1937-38. (3)	1938-39. (4)	1939-40. (5)	1940-41. (6)	1941-42. (7)	1942-43. (8)	1943-44. (9)	1944-45. (10)	1945-46. (11)	1946-47. (12)	1347-48. (13)
1 Vijayavada ..	20,014	13,326	11,610	13,925	9,282	8,724	9,706	10,741	10,235	8,757	14,714	10,556
2 Chittoor ..	3,688	5,619	3,000	8,327	4,352	7,691	4,436	3,124	2,232	2,598	2,745	3,424
3 Tanjore ..	15,911	16,013	18,333	..	16,150	..	..	15,106	16,213	8,796	9,902	9,830
4 Hospet ..	2,703	4,712	4,522	4,793	3,920	4,820	3,430	3,294	2,184	2,174	3,618	4,290
5 Kancheepuram.	9,702	11,199	8,265	10,344	7,659	12,685	11,576	8,766	6,102	9,050	12,252	10,857
6 Cuddalore ..	9,825	10,328	9,769	9,762	9,989	11,438	11,402	10,196	8,510	8,300	8,339	..
7 Tiruvannamalai	3,245	2,206	622	1,507	1,186	1,429	1,412	1,655	2,992	3,048	1,253	1,104
8 Palacole ..	4,710	3,117	3,129	2,601	2,249	2,586	2,136	1,734	1,690	2,092	2,867	1,730
9 Ootacamund ..	50	145	74	153	119	124	152	238	194	205	322	194
10 Kodaikanal ..	38	4	38	..	..	..	..	41	201	116	149	62
11 Tuticorin ..	16,333	10,515	10,289	6,446	6,556	4,820	6,591	15,452	12,974	12,666	9,268	3,759
12 Tadpatri ..	3,016	3,012	2,979	3,907	2,585	3,343	2,958	3,423	1,409	613	1,616	1,852
13 Nandyal ..	5,354	..	..	2,706	3,511	5,623	4,996	4,178	4,216	4,751	5,910	5,470
14 Mathurai ..	23,389	20,445	16,997	25,608	21,726	27,688	25,609	16,374	46,303	22,198	26,219	22,802
15 Tirunelveli ..	..	3,129	3,787	5,113	4,913	3,673	1,908	1,112	3,653	3,539	3,909	2,731
16 Rajahmundry.	..	17,324	15,361	16,653	16,216	17,835	13,915	15,357	7,557	13,651	18,677	..
17 Vizianagram.	..	2,769	7,579	11,919	10,970	11,350	9,855	8,190	6,304	7,160	9,553	..
18 Coimbatore ..	..	5,267	5,221	6,077	2,723	2,722	4,418	2,722	8,747	4,387	5,579	5,577
19 Tellicherry ..	..	3,153	3,206	3,286	3,714	4,683	3,027	6,094	2,659	3,386	3,708	5,049
20 Adoni	..	5,321	6,680	7,109	6,742	13,135	9,424	9,322	6,203	5,283	9,023	10,058
21 Tiruchirappalli.	..	..	46,546	40,278	54,290	48,042	36,798	33,306	34,877	23,007	32,073	33,495
22 Masulipatam..	..	..	4,441	3,901	3,579	5,111	2,880	2,418	3,519	5,152	6,945	6,965
23 Tiruppur ..	..	..	3,455	5,500	2,917	1,969	3,045	3,588	3,979	3,860	4,459	3,888
24 Guntur ..	..	..	7,400	6,707	7,775	7,253	5,777	..	..	..	..	..
25 Chingleput ..	..	..	3,990	3,721	3,881	4,824	6,012	5,324	3,514	4,057	3,963	2,458

26 Anantapur ..	..	..	..	1,120	2,060	4,870	4,058	3 316	1,973	1,235	2,155	..
27 Bodinayakkanur.	..	..	..	6,142	5,715	3,037	1,826	3,305	3,842	3,738	3,423	4,842
28 Udamalpet ..	..	..	..	5,100	3,650	3,112	3,196	3 031	3,194	3,743	4 233	..
29 Perambur ..	..	..	..	..	1,15,270	2,04,068	1,62,739	1,48,735	1,25,628	1,15,569	1,18 608	1,11,608
30 Dharapuram ..	..	..	..	..	4,701	5,236	5,728	3,739	4,117	5,337	5,112	..
31 Srirangam ..	..	..	..	..	3,598	3 376	2,733	3,148	1,972	1,804	1,652	1,908
32 Kakinada ..	..	..	..	..	..	5,546	6,195	6,066	3,369	4,675	7,589	..
33 Karur ..	..	..	..	..	..	4,145	4,649	..	5,301	6,093	8,681	4,840
34 Kumbakonam.	..	..	..	..	..	10,205	10,106	6,902	9,185	6,942	..	..
35 Vizagapatnam.	..	..	..	..	..	..	11,494	9,124	10,536	10,082	7,055	10,998
36 Karaikudi ..	..	..	..	..	..	..	7,346	5,632	4,740	4,461	5,493	6,453
37 Eluru ..	..	..	..	..	..	..	7,574	10,997	7,781	11,953	11,251	11,876
38 Udipi ..	..	..	..	..	..	..	241	278	262	169	225	246
39 Tirupputtur ..	..	..	..	..	..	..	7,000	5,131	4,730	4,270	5,490	5,130
40 Tindivanam ..	..	..	..	..	..	..	5 370	5,107	4,417	4,260	3,641	3,974
41 Anakapalle ..	..	..	..	..	..	..	1,547	1,057	845	593	1,329	1,929
42 Peddapuram ..	..	..	..	..	..	..	..	1,646	1,452	1,437	2,150	1,424
43 Mayuram ..	..	..	..	..	..	..	..	5 826	4,587	4,014	4,988	4,678
44 Bellary ..	..	..	..	..	..	..	..	15,926	13,203	12,465	9,610	12 272
45 Gudiyatham ..	..	..	..	..	..	..	..	6,763	8,084	7,145	6,574	7,596
46 Periyakulam ..	..	..	..	..	..	..	..	747	2,182	2,990	2,070	2,512
47 Ramnad ..	..	..	..	..	..	..	..	2,128	1,622	2,371	1,815	3,128
48 Mannargudi ..	..	..	..	..	..	..	..	4,316	3,594	7,910	5,210	3,919
49 Kurnool ..	..	..	..	..	..	..	..	..	9.676	5 193	8,616	5,100
50 Cannanore ..	..	..	..	..	..	..	..	..	4,818	4 645	2,715	..
51 Villipuram ..	..	..	..	..	..	..	..	..	5,276	5,178	4,734	5,531
52 Tenali ..	..	..	..	..	..	..	..	..	1,946	905	3 916	3,919
53 Tiruvarur ..	..	..	..	..	..	..	..	..	5,626	5,235	6 299	6,334
54 Nagapattinam.	..	..	..	..	..	..	..	..	10,530	8,449	11,009	11,362
55 Walajahpet ..	..	..	..	..	..	..	..	..	1,654	945	..	1,258
56 Hindupur ..	..	..	..	..	..	..	..	..	..	3,702	4,938	2,998
57 Gudivada ..	..	..	..	..	..	..	..	..	..	1,466	2,799	2.094
58 Palamcottah ..	..	..	..	..	..	..	..	..	..	774	1,056	2,337
59 Manamadura.	..	..	..	..	..	..	..	..	..	615	1,101	1,515
60 Palghat ..	..	..	..	..	..	..	..	..	..	3,265	3,305	3.934
61 Mangalore ..	..	..	..	..	..	..	..	..	..	..	3,810	3,654
62 Vaniyambadi..	..	..	..	..	..	..	..	..	..	..	7,112	6,693
63 Nellore ..	..	..	..	..	..	..	..	..	..	..	..	6,850

ANNEXURE 4.

Monthly slaughters of sheep in the City of Madras for the years 1946–47 and 1947–48.

	1946-47.	1947-48.		1946-47.	1947-48.
April	27,904	24 302	October	32,993	30 059
May	27 583	27,075	November ..	29,416	31 843
June	28 379	2 ,620	December ..	26 594	27,792
July ..	31,557	26 923	January	29,(96	23 115
August	32 366	27,554	February ..	24,427	19 273
September ..	28 790	27,042	March	27,377	19,195

ANNEXURE 5.

Monthly slaughters of goats in the City of Madras for the years 1946–47 and 1947–48.

	1946-47.	1947-48.		1946-47.	1947-48.
April	10 665	8 358	October	11,294	11,080
May	11,794	9 515	November .	9,432	12,452
June	10,967	9 605	December ..	9,23)	9,306
July	7,939	10,098	January	9,233	8,315
August	11,022	10,361	February ..	7,576	6 958
September ..	10,602	8,912	March	8 845	6,648

ANNEXURE 6.

Statement showing the production in each district in the Madras Province in 1944.

District.	Total production.	Per cent on total production.	Slaughtered. Total production.	Slaughtered. Per cent on total production.	Fallen. Total production.	Fallen. Per cent on total production.
COWS.						
Vizagapatnam	1·93	5·89	0·01	0·5	1·92	99·5
East Godavari	1·52	4 65	0·03	2·0	1·49	98·0
West Godavari	1·04	3·18	0·03	2·9	1·01	97·1
Krishna	0·85	2·58	0·01	1·2	0·84	98·8
Guntur	0·84	2·56	0·005	..	0·84	..
Kurnool	0·67	2·04	0·02	3·0	0·65	97·0
Bellary	0·76	2·31	0·04	5·3	0·72	94·7
Anantapur	1·03	3·15	0.005	1·0	1·02	99·0
Cuddapah	0·58	1·78	..	..	0·58	100
Nellore	1·21	4·31	..	..	1·21	100
Chingleput	1·35	4·75	..	..	1·35	100
South Arcot	2·17	6·63	0·006	.	2·16	99·5
Chittoor	1·71	5·22	..	..	1·71	100
North Arcot	1·96	6·00	0·005	..	1·96	..
Salem	2·75	8·41	..	..	2·75	100
Coimbatore	2·15	6·58	0·03	1·4	2·12	98·6
Tiruchirappalli	1·73	5 28	0·05	2·9	1·68	97·1
Tanjore	1·95	5·96	0·01	0·5	1·94	99·5
Mathurai	1·50	4·58	0·06	4·0	1·44	96·0
Ramnad	1·08	3·31	..	..	1·08	100
Tirunelveli	1·06	3·23	..	..	1·06	100
Malabar	1·67	5·12	0·03	1·8	1 64	98·2
South Kanara	1·11	3 32	0·01	0·9	1·10	99·1
Nilgiris	0 007	0·21	0·07	..	..	..

District.	Total production.	Per cent on total production.	Slaughtered. Total production.	Slaughtered. Per cent on total production.	Fallen. Total production.	Fallen. Per cent on total production.
BUFFALOES.						
Vizagapatnam	1·11	8·80	0·04	3·6	1·07	96·4
East Godavari	0·66	5·26	0·01	1·5	0·65	98·5
West Godavari	0·70	5·62	0·02	2·8	0·68	97·2
Krishna	1·03	8·21	0·02	1·8	1·01	98·1
Guntur	1·50	11·96	0·02	1·3	1·48	98·7
Kurnool	0·59	4·67	..	Nil.	0·59	100
Bellary	0.28	2·26	0·01	3·6	0·27	96·4
Anantapur	0·34	2·77	..	Nil.	0·34	100
Cuddapah	0·53	4·29	..	Nil.	0·53	100
Nellore	1·07	8.55	..	Nil.	1·07	100
Chingleput	0·37	2·98	..	Nil.	0·37	100
South Arcot	0·28	2·29	0·01	3·6	0·27	96·4
Chittoor	0·34	2·71	..	Nil.	0·34	100
North Arcot	0·27	2·19	..	Nil.	0 27	100
Salem	0 34	2·73	..	Nil.	0·34	100
Coimbatore	0·39	3·12	..	Nil	0·39	100
Tiruchirappalli	0·40	3·20	0·01	2·5	0·39	97·5
Mathurai	0·29	2·30	..	Nil.	0·29	100
Tanjore	0·49	3·93	..	Nil.	0·49	100
Ramnad	0·22	1·82	..	Nil.	0·22	100
Tirunelveli	0·32	2·55	..	Nil.	0·32	100
Malabar	0·45	3·58	..	Nil.	0·45	100
South Kanara	0·45	3·58	..	Nil.	0·45	100
Nilgiris	0·03	0·28	..	Nil.	0·03	100
GOAT.						
Vizagapatnam	1·06	6·25	0·02	18·9	0·86	81·1
East Godavari	0·34	1·99	0·57	..	..	..
West Godavari	0·28	1·66	0·13	46·4	0·15	53·6
Krishna	0·47	2·77	0·18	38·3	0·29	61·7
Guntur	0·49	2·99	0·10	20·4	0·39	79·6
Kurnool	0·59	3·49	0·12	20·3	0·47	79·7
Bellary	0·46	2·69	0·14	30·5	0·32	69·5
Anantapur	0·71	4·20	0·09	12·7	0·62	87·3
Cuddapah	0·49	2·89	..	..	0·49	100
Nellore	0·73	4·33	0·07	9·6	0·66	90·4
Chingleput	0·48	2·86	0·14	29·2	0·34	70·8
South Arcot	0·90	5·32	0·19	21·1	0·71	78·9
Chittoor	0·96	5·67	0·04	4·2	0·92	95·8
North Arcot	0·58	3·45	0·23	39·6	0·35	60·4
Salem	1·70	10·08	..	..	1·70	100
Coimbatore	0·99	4·65	0·17	17·2	0·82	82·8
Tiruchirappalli	1·38	8·14	0·46	33·3	0·92	66·7
Tanjore	1·08	6·38	0·46	42·6	0·62	57·4
Mathurai	0·95	5·59	0·31	32·6	0·64	67·4
Ramnad	0·75	4·41	0·09	12·0	0·66	88·0
Tirunelveli	0·81	4·78	0·14	17·3	0·67	82·7
Malabar	0·74	4·35	0·11	14·9	0·63	85·1
South Kanara	0·08	0·45	0·04	50·0	0·04	50·0
Nilgiris	0·01	0·08	..	..	0·01	100

District.	Total produc-tion.	Per cent on total produc-tion.	Slaughtered: Total produc-tion.	Slaughtered: Per cent on total produs-tion	Fallen: Total produc-tion.	Fallen: Per cent on total produc-tion.
SHEEP.						
Vizagapatnam	2·23	5·92	0·02	9·0	2·03	91·0
East Godavari	0·21	0 55	0·28	..	..	..
West Godavari	0·37	1·02	0·19	51·3	0·18	48·7
Krishna	0·68	1·82	0·63	26·5	0·05	73·5
Guntur	1·85	4·90	0·31	16·8	1·54	83·2
Kurnool	1·6[illegible]	4·46	0·18	11·0	1·50	89·0
Bellary	0 97	2 58	0·33	17·0	0·64	83·0
Anantapur	2·85	7·56	0·12	4·2	2·73	95·8
Cuddapah	1·45	3·8[illegible]	..	..	1·45	100
Nellore	2·19	7·16	0·09	4·1	2·10	95·9
Chingleput	0·95	2·52	0·22	23·1	0·73	76·9
South Arcot	1·12	3·93	0·12	10·7	1·00	89·3
Chittoor	2·07	5·50	0·08	3·9	1·99	96·1
North Arcot	1·92	5·09	0·35	18·2	1·57	81·8
Salem	3 62	9·5[illegible]	..	..	3·62	100
Coimbatore	3·34	8·85	0·93	27·8	2·41	72·2
Tiruchirappalli	3·11	8·23	1·10	35·4	2·01	64·6
Tanjore	0·60	1·61	0·36	60·0	0·24	40·0
Mathurai	1·24	3·29	1·24	100·0	..	..
Ramnad	2·18	5·08	0·12	5·5	2·06	94·5
Tirunelveli	2·13	5·67	0·29	13·6	1·84	86·4
Malabar	0·002	0·06	0·11	..	..	..
South Kanara	..	..	..	..	..	..
Nilgiris	0·008	0·017	0·24	..	..	..

ANNEXURE 7.

Some of the diseases of animals which affect the skins, etc.

The value of the skins will be considerably reduced and sometimes unfit for use.

1. *Anthrax.*—In rare cases a localized circumscribed swelling consisting of fixed, infiltrated cordaceous tissue may be present in any part, over which dirty brown skin may be broken, forming a deep sinuous ulcer, covered with necrotic shreds of tissue.

This is not always the case. Very rare.

2. *In purpura hæmorrhagica.*—Eruptions resembling urticaria at the beginning of the disease occurs. Oedematous swellings on the chest and abdomen appear. Sometimes the skin shows cracks, which expose a moist reddened wound. Sometimes dry round portions of skin as large as a dollar or even larger, dark brown parchment like are separated and fall off. Thus it my spoil the skin.

3. *Rinderpest.*—In some instances during life dermatitis occurs. This does not affect the skin much.

4. *Vaccinia (Pox.).*—This is the worst disease affecting the skins very badly. *Pox.*—The epithelial layers of the skin of the m.m. are the most favourable places for the progagation of the virus. Vesicles and pustules are formed and affect the skin, thereby causing destruction of the corium. May be localized or generalized. At first it produces a local eruption, then it produces a generalized eruption of pox.

(*a*) *Sheep-pox* is a very fatal disease, usually spreads only among sheep. Produces characteristic changes of the skin, under the skin, hard nodules, the size of hazelnuts and showing a homogenous cut surface may occur. Small

cavities develop which are separated from one another as the result of bursting of the vesicles.—then becomes purulent thereby destroying the skin structure. The lesions occur all over the body especially in the eyes, cheeks, lips, on the inside of the thighs, udder, i.e., in places free from wool. Will not affect goats.

(*b*) *Cow-pox.*—The vesicles are seen on the udder, teats of cows. Generalized pox eruption occurs only very rarely. Lesions in generalized pox appear as hazelnuts, with febrile symptoms on the udder, on the inner surface of the thigh, on the croup, romp, chest, neck and in the muzzle.

(*c*) *Goat-pox.*—Vesicles and partly coalescent vesicles containing a depression on top, develop on various parts of the body especially however on the udder and on the inner surface of the extremities, on the face, and in parts surrounding lips and eyes. They form scabs in the usual manner and heal with radiating scars. Thus it affects the skin value.

5. *Foot and mouth disease.*—Cattle are most susceptible to natural infection. The frequent affection of the mouth, udder and feet are seen. When it affects the udder with vesicles, it may lower the value of the skin. Simultaneously with the affection of the mouth and tongue, etc., small vesicles develop in cattle on the muzzle and at the base of the horns rarely. Vesicles with erosions covered by scabs on the teats of the udder are generally seen.

Only a small portion of the skin will be affected and the value of the skin will be reduced slightly.

Diseases of the skin.

Eczema of cattle.—Is an acute or chronic inflammation of the papillary bodies and of the superficial layers of the corium of the skin, associated with redness, profuse exudation and itching. Affects the fore-head, back of the neck, and the root of the tail. Pustules develop and latter thick scaly scabs arise. The skin is very slightly thickned but elastic.

2. *Dermatitis.*—(Inflammation of the skin) is alterations in the skin which arise in the connective tissue of the vessels of the skin with marked indications of inflammation although the epidermis and the surface of the skin may occasionally remain unchanged, only becoming affected when the continuously filled overfilled blood vessels drive inflammatory effusion to the surface.

Injury to the cutis and epidermis sometimes occurs. Cracks and fissures will occur in the skin. Death of certain parts of the skin may occur.

3. *Gangrene of the skin.*—Is death of circumscribed portions of the skin which is produced either as a direct result of tissue destruction or from an arrested blood supply to the part, or which arises in the course of deep seated inflammations of the skin. The skin is affected and the dead portion is cast off from the living tissue by sloughing. Affects regions of the eye, ears, lips. In sheep the causative agent is necrebacillesis (Necrophorus).

4. *Ring-worm.*—Generally affects calves. This is a contagious disease of the skin caused by a thread fungus, the Trichophyton tonsurans and is characterized by the occurrence of more or less roundish, sharply defined spots, in the sphere of which the skin is at times covered with vesicles, but generally with scabs or scales and appears either naked or covered by short hair stumps.

An essential characteristic of herpes is the peripheral spread in ring form with pealike nodules hidden in the hair and covered with little scales from which flat raised, sharply circumscribed roundish spots gradually arise beset with ruffled hair and covered with greyish white and dirty yellow scales.

It affects the head, neck, anus, trunk, croup and on the side of the chest.

Acarina.

Mange parasites.—Sarcotidæ. Psoroptes, and Symbiotes. (Acarina.—Order.)

Dermatocoptes. (Psoroptes.)—The mites burrow through the epidermis and the cutis by means of their pointed chewing apparatus in order to suck the tissue fluids from the deeper layers. They do not enter the epidermis but remain on the surface of the skin between and underneath the scab.

Sarcoptes. (Burrowing mites.)—The mites dig themselves into the deeper layers of the epidermis which are rich in tissue fluids and feed on the epidermis cells. They dig winding passages which run parallel with the surface of the skin.

Dermatophagus. (Chorioptes, Symbiotes).—The dermatophagus live in the remnants of the gnawed parts of the outer skin subsisting on the epidermic cells of the stage between the young and fully formed ones and in order to reach them they will often remove the outer layer and in this way produce a dust like covering for the skin.

The disease producing powers of the mites rest upon their depositing some irritating substance probably saliva between the gnawed cells of the outer skin.

The skin changes in Sarcoptic and Dermatocoptic scabies will be cavities formed by the elevation of superficial scabs or scurf and by tunnels and gallaries which open into them. Thickening of the skin and formation of folds may occur. Sometimes small warty growths will appear around the scabs having wall like elevations caused by sarcoptes located upon the surface.

Regions affected.

(*a.*) *Sarcoptus*—

1. *Cattle.*—Head, neck, all over the body, loins, tail, perineum, udder, inner surface of the hind legs.

2. *Sheep.*—On the parts of the body not covered with wool, lips, angles of mouth nasal openings, face, ears, feet, hairs of carpal and tarsal joints.

Goats.—Face, lips, nasal openings, ears. In severe cases body, lower abdomen, the udder and finally to extremities.

(*b*) *Dermatocoptes* (Psoroptes)—

Cattle.—Upper edge of the neck at the foretop, at the base of the horns, at the withers, on the sides of the neck, at the root, of the tail. Advances in the direction of the long axis of the body later, however spreads also along the transverse axis and passes on to the lateral surface as the chest and belly while even in severe cases the legs remain unaffected.

Sheep.—Extensively on the parts of the body which are thickly covered with wool. Inguinal region, back, sides of the body, skin in front of chest and on the lower abdomen *is never attacked.*

Goats (Ear mange).—External ear only affected.

Dermatocoptes—

Cattle.—In the grooves at both sides of the root of the tail, in the fetlock. In neglected cases, it spreads to the croup, loins and back, on the perenium the inner surface of thighs, sometimes also to the scrotum or udder.

Sheep.—Occurs very rarely. Hind fetlocks and their joints. (Leg scab, fet lock mange.) Exceptionally the forelegs are affected may extend to scrotum or udder.

Goats.—Neck, along the line of the back, root of the tail, then spread to the sides of the body, the face, ears, extremities, udder and tail remain exempt.

Acarus mange (Acarus mange)—(Follicular mange).—Caused by Acarus mite, characterized by the absence of or slight itching, by falling out of the hair mostly with simultaneous desquamation or by pustule formation, with subsequent denuded thickening of the skin. Occurs mostly in all parts of the hair follicles and sebaceous glands and lie almost without exception with their heads directed towards the base of the cavity.

Regions affected.

Cattle.—Trunk, neck, shoulders but may appear over the whole body.

Goats.—Principally either on the body or on the head and legs.

Sheep.—Flanks, backs of the sheep, loins, along the sides and neck to the horns.

Other mites in the domesticated animals.

Ticks (Ixodidæ).—The ticks bore tinto the skin. The adult parasites attack sheep, cattle, goats. Transmits piroplasmosis of cattle. The various ticks are (1) Ixodes. (2) Rhiphecephalus. (3) Boophilus. (4) Hyalemma. (5) Dermacenter. (6) Rhipecentor. (7) Ambylyomma. (8) Hæmophysalis. They usually bite a

firm hold near the spot where they find themselves upon their host and in a few weeks become sexually ripe. Their total stay upon a host amounts to three to four weeks.

The total period required for undisturbed development is about 19 weeks on an average.

The various ticks can live without nourishment while in the larval or nymphal stage for six to seven months and after reaching sexual maturity for fourteen months or more.

Animals with *thin skins* are most seriously affected. The chief effects of the ticks as ectoparasites are exerted as blood suckers.

The alterations of the skin are chiefly roughness and unevenness from the attaching of the ticks. These conditions are seen most numerously on necks, ears, naval, thighs, teats, etc. of cattle, while in other animals they are seen in other locations.

Warble Fly.—Bot Larvæ disease (Hypodermosis).—The attack of the flies while attempting to deposit their eggs disturb the cattle greatly and cause uneasiness and running round.

The warble boils afford constant indications of the presence of the larvæ. Larvæ found greatly in the sucmucous tissue. In the skin the swelling occurs which gradually increases in size and shows an opening, which is at first about the size of a pin's head, but later on becoming bigger and circular, produced by the boring movements of the larvæ. Perforations will be seen in the loins, etc.

Great importance attaches to the larvæ in every case through the depreciation of the skin and flesh. The skin of the infested animals is either perforated or after the exit of the larvæ, it contains little cicatrices and thus its value will be diminished in proportion to the holes, scars, the more so, as these changes are mostly met with in the most valuable part of the skin, namely that of the back, loins and croup.

Parasitic thread worm of the Skin (Filaria Hæmorrhagica).—Causes summer sores. Pitted scabs appear. This causes parasitic dermatitis with eczematous and œdematious alterations in the skin. The affected skin is without tendency to heal and always itching.

ANNEXURE 8.

Statement showing export of different classes of Tanned Hides and Skins from Madras Presidency.

(Number in 1,000.)

Year.	Buff hides.	Cow hides.	Buff calf.	Cow calf.	Other.	Total hides.	Goat skins.	Sheep skins.	Other.	Total skins.	Total hides and skins.
1901–02	..	..	..	..	..	1,955	..	..	..	11,922	13,877
1902–03	..	..	..	..	..	1,559	..	..	..	13,883	15,443
1903–04	..	..	..	..	..	1,453	..	..	..	14,519	15,972
1904–05	..	..	..	..	..	1,715	..	..	..	11,710	13,425
1905–06	..	..	..	..	..	2,668	5,323	7,041	237	12,602	15,271
1906–07	..	..	..	..	..	2,941	5,972	7,770	266	14,008	16,950
1907–08	..	..	..	..	..	1,691	5,620	8,318	146	14,085	15,775
1908–09	..	..	..	..	..	2,195	6,068	8,414	244	14,726	16,921
1909–10	..	..	..	..	..	2,173	5,118	8,110	228	13,456	15,628
1910–11	..	..	..	..	..	1,716	6,616	8,437	228	15,282	16,997
1911–12	..	..	..	..	..	2,094	7,420	8,783	492	16,695	18,789
1912–13	157	2,581	..	..	..	2,738	5,523	8,771	453	14,746	17,484
1913–14	154	1,751	..	..	..	1,906	7,055	7,507	435	14,997	16,903
1914–15	239	2,079	..	..	..	2,318	5,938	6,759	737	13,434	15,782
1915–16	262	2,791	..	..	..	3,054	6,995	7,063	476	14,535	17,589
1916–17	319	3,256	..	..	..	3,636	8,607	9,000	761	18,367	22,003
1917–18	200	3,888	..	..	..	4,088	552	1,336	401	2,289	6,377
1918–19	92	6,249	..	..	..	6,341	923	2,335	519	3,777	10,118
1919–20	292	4,673	180	674	..	5,820	3,945	10,190	..	14,135	19,955
1920–21	40	800	73	364	..	1,277	1,996	6,648	1	8,645	18,567

1921–22	72	1,158	59	391	..	1,680	2,772	9,776	4	12,552	14,232
1922–23	131	2,077	206	760	..	3,174	3,105	10,139	2	13,247	16,420
1923–24	170	2,867	192	928	..	4,157	2,747	12,251	5	15,003	19,160
1924–25	171	2,787	268	863	..	4,092	7,318	11,133	1	18,454	22,546
1925–26	83	2,750	344	970	..	4,157	7,953	11,945	9	19,907	24,064
1926–27	86	2,740	317	964	..	4,107	9,787	11,857	113	21,757	25,864
1927–28	234	3,642	614	1,214	..	5,704	10,197	12,748	564	23,509	29,213
1928–29	289	3,839	665	1,023	..	5,816	10,346	11,374	1,156	22,876	28,692
1929–30	229	3,616	597	900	..	5,342	9,170	11,875	1,121	22,167	27,508
1930–31	157	3,094	427	713	..	4,391	7,948	10,990	431	19,367	23,760
1931–32	129	2,785	341	536	..	3,791	8,331	9,402	737	18,471	22,261
1932–33	(Figures not available for these four years.)										
1933–34											
1934–35											
1935–36											
1936–37	318	6,877	676	1,224	..	9,095	13,126	13,358	160	26,643	35,738
1937–38	313	4,561	792	1,313	·6	6,980	10,931	12,511	162	23,604	30,584
1938–39	269	4,343	559	975	·5	6,146	9,683	10,430	156	20,269	26,415
1939–40	666	7,068	943	1,794	2·0	10,473	9,047	11,934	139	21,120	31,593
1940–41	425	5,407	911	1,168	5·0	7,916	3,394	5,211	29	8,634	16,550
1941–42	336	4,520	738	122	2·0	5,718	3,926	8,059	92	12,077	17,795
1942–43	21	2,740	651	991	4·0	4,407	3,337	6,014	79	9,430	13,837
1943–44	..	1,811	409	750	1·0	2,971	2,564	5,220	2	7,786	10,757
1944–45	..	1,317	145	586	1·0	2,049	3,816	5,166	108	9,090	11,139
1945–46	..	1,465	140	311	..	1,916	6,871	4,067	618	11,556	13,472
1946–47	..	..	..	..	..	..	..	..	..	..	..

ANNEXURE 9.

Statement showing export of different classes of tanned hides and skins from Madras Presidency.

(Weight in 100 cwt.)

Year.	Buff hides.	Cow hides.	Buff calf.	Cow calf.	Total hides.	Goat skins.	Sheep skins.	Other.	Total skins.	Total hides and skins.
1901–02 ..	..	..	..	..	120,4	..	..	..	100,4	220,8
1902–03 ..	..	..	..	..	97,0	..	..	..	111,2	208,2
1903–04 ..	..	..	..	..	93,9	..	..	..	124,9	218,8
1904–05 ..	..	..	..	..	112,5	..	..	..	101,6	214,0
1905–06 ..	..	..	..	..	177,7	48,1	48,3	4,2	100,7	278,4
1906–07 ..	..	..	..	..	197,5	52,6	52,2	4,6	109,4	306,9
1907–08 ..	..	..	..	..	114,0	50,6	55,3	2,4	108,3	222,3
1908–09 ..	..	..	..	..	144,8	54,4	55,5	4,3	114,2	259,0
1909–10 ..	..	..	..	..	151,3	47,9	53,7	4,3	105,9	257,2
1910–11 ..	..	..	..	..	124,5	58,3	54,4	4,0	116,8	241,3
1911–12 ..	..	..	..	..	150,2	64,6	54,7	7,5	126,8	277,0
1912–13 ..	14,7	177,5	..	..	192,2	47,7	52,8	7,5	108,0	300,2
1913–14 ..	14,1	128,3	..	..	142,4	59,4	44,4	6,8	110,5	252,9
1914–15 ..	22,2	148,0	..	..	170,3	47,6	39,8	10,1	97,5	267,8
1915–16 ..	23,5	198,9	..	..	222,4	57,0	40,8	7,2	105,1	327,5
1916–17 ..	30,4	244,2	..	..	274,6	68,6	51,9	12,5	133,0	407,6
1917–18 ..	17,8	283,1	..	..	300,8	3,7	6,6	5,9	16,2	317,0
1918–19 ..	7,5	443,0	..	..	450,5	6,5	12,7	7,3	26,6	477,1
1919–20 ..	29,5	332,6	3,1	9,8	375,0	25,3	56,8	..	82,2	557,2

(Weight in tons.)

1920–21 ..	197	2,778	60	232	3,267	691	1,677	..	2,368	5,635
1921–22 ..	360	3,784	49	248	4,441	1,007	2,516	26	3,549	7,990
1922–23 ..	598	6,792	175	510	8,075	1,156	2,860	7	4.023	12,098
1923–24 ..	744	9,570	162	652	11,128	997	3,291	1	4,289	15 417
1924–25 ..	797	9,276	214	570	10,857	2,504	2,763	9	5,296	16,153
1925–26 ..	377	9,147	287	600	10,411	2,490	3,033	8	5,581	15,934
1926–27 ..	382	8,515	262	611	9,770	3,051	3,016	5	6,075	15,845
1927–28 ..	1,024	11,609	494	750	13,877	3,199	3,123	39	6,362	20.239
1928–29 ..	1,293	12,327	573	659	14,852	3,072	2,941	82	6,095	20,947
1929–30 ..	1,000	17,707	530	599	12,836	2,674	3,001	74	5,749	18,585
1930–31 ..	605	9,236	386	500	10,727	2,779	2,678	34	5,491	16,218
1931–32 ..	555	8,305	304	448	9·612	2,394	2,501	53	4,948	14,560
1932–33 ..	377	7,481	312	415	8,585	2,696	2.324	46	5,066	13.651
1933–34 ..	704	10,893	410	578	12,585	3,264	2,590	39	5,893	18,478
1934–35 ..	681	9,243	394	652	11,370	3,364	2,629	53	6,047	17,417
1935–36 ..	1,089	11,427	379	697	14,029	2,887	2,807	110	6,275	20,304
1936–37 ..	1,290	14,456	609	963	17,318	3,597	3,326	72	6,995	24,313
1937–38 ..	1,222	13,455	750	1,110	16,537	3,261	3,130	33	6,424	22,961
1938–39 ..	1,017	12,011	552	801	14,381	2,683	2,512	21	5,216	19.597
1939–40 ..	2,441	20,247	900	1,348	24,940	2,542	2,950	36	5 528	30.468
1940–41 ..	1,504	15,148	760	1,025	18,437	1,166	1,278	6	2 450	20.887
1941–42 ..	1,241	12,817	653	900	15,612	1,294	1,971	6	3,271	18.883
1942–43 ..	75	7,910	849	793	9,627	1,041	1,505	8	2,554	12.181
1943–44 ..	1	5,109	372	581	6,063	749	1,250	9	1,999	8,062
1944–45 ..	..	3,479	122	444	4,045	1,289	1,318	6	2,613	6.658
1945–46 ..	..	4,869	120	240	5,229	2,642	1,339	18	3,999	9.228
1946–47 ..	538	14,187	613	518	15,856	4,856	1,771	104	6,731	22.587

ANNEXURE 10.

Statement showing export of different classes of tanned hides and skins from Madras Presidency.

(Value in thousands of rupees.)

Year.	*Buff.*	*Cow hides.*	*Buff calf.*	*Cow calf.*	*Other hides.*	*Total hides.*	*Goat skins.*	*Sheep skins.*	*Other skins.*	*Total skins.*	*Total hides and skins.*
1901–02 ..	..	..	..	..	..	6,694	..	..	..	14,011	20,705
1902–03 ..	..	..	..	..	..	5,455	..	..	..	17,649	23,103
1903–04 ..	..	..	..	..	..	5,481	..	..	..	18,934	24,415
1904–05 ..	..	..	..	..	..	7,418	..	..	..	14,486	21,904
1905–06 ..	..	..	..	..	..	13,359	8,279	6,344	399	15,021	28,381
1906–07 ..	..	..	..	..	..	15,198	10,735	9,685	411	20,832	36,029
1907–08 ..	..	..	..	..	..	8,847	10,702	10,696	216	21,614	30,461
1908–09 ..	..	..	..	..	..	11,222	11,555	10,801	396	22,752	33,974
1909–10 ..	..	..	..	..	..	11,516	10,247	10,266	365	20,878	32,894
1910–11 ..	..	..	..	..	..	9,653	12,996	10,424	378	23,799	33,451
1911–12 ..	..	..	..	..	..	12,013	14,304	10,511	688	25,503	37,516
1912–13 ..	980	15,046	..	..	..	16,027	10,556	10,287	726	21,569	37,596
1913–14 ..	993	11,331	..	..	..	12,325	13,119	8,570	683	22,371	34,696
1914–15 ..	1,988	16,000	..	..	..	17,988	10,264	7,521	1,203	18,988	37,876
1915–16 ..	2,098	21,560	..	..	..	23,658	12,200	8,148	804	21,151	54,809
1916–17 ..	3,394	32,970	..	..	..	36,370	21,235	16,596	1,916	39,747	76,117
1917–18 ..	1,793	29,510	..	..	..	41,304	2,586	3,186	791	6,565	47,869
1918–19 ..	623	64,038	..	..	..	64,663	3,193	3,600	1,041	9,834	74,497
1919–20 ..	3,202	49,701	524	2,515	..	55,943	15,149	25,769	..	40,918	96,861
1920–21 ..	374	7,139	215	903	..	8,633	6,435	11,626	3	18,064	26,697

1921–22	475	7,267	94	625	..	8,464	7,132	14,209	4	21,347	29,811
1922–23	984	14,169	351	1,495	..	17,001	8,806	15,122	2	23,931	40,932
1923–24	1,197	21,381	329	1,987	..	24,897	6,586	17,530	6	24,122	49,019
1924–25	1,510	21,566	534	2,216	..	25,828	17,004	16,153	4	23,161	58,989
1925–26	741	21,282	762	2,191	..	24,976	16,878	18,162	9	35,050	60,026
1926–27	707	19,300	823	2,320	..	23,152	20,979	19,443	212	40,634	63,786
1927–28	2,056	28,350	1,417	3,001	..	34,826	22,382	19,558	1,080	43,021	77,847
1928–29	2,729	31,420	1,767	2,627	..	38 546	21,775	18,356	2,091	42,223	80,769
1929–30	1,986	24,137	1,519	2,245	..	29 890	19,190	17,920	1,942	39,054	68,944
1930–31	1,114	20,145	951	1,462	..	23 675	15,735	15,793	632	32,165	55,840
1931–32	960	16,603	633	1,278	..	19 476	15,096	12,482	574	28,153	47,629
1932–33	520	13,080	520	990	..	15,140	16,010	11,460	470	27,940	43,080
1933–34	1,120	19,730	780	1,310	..	22,950	16,090	12,570	370	29,010	51,960
1934–35	1,160	15,670	720	1,510	..	19,060	17,300	12,650	240	30,190	49,250
1935–36	1,800	18,080	680	1,590	..	22 150	13,520	13,620	370	27,510	49,660
1936–37	2,189	24,945	1,309	2,270	..	30,713	17,522	15,751	334	33,667	64,320
1937–38	1,999	24,850	1,651	2,838	..	31,339	15,695	15,344	76	31,114	62,453
1938–39	1,267	17,668	1,092	2,012	..	22 038	11,845	12,021	67	23,934	45,972
1939–40	3,173	32,143	1,903	3,925	..	41,151	11,150	13 660	280	25,090	66,241
1940–41	2,208	32,916	1,836	3,342	..	40,302	48,751	6,084	26	10,985	51,287
1941–42	2,052	27,978	1,609	3,003	..	34 642	6,162	9,532	67	15,761	50,403
1942–43	121	17,377	1,369	2,516	..	21,383	4,739	7,710	63	12,512	33,895
1943–44	1	11,888	9,580	2,076	..	23,545	3,751	6,815	5	10,571	34,116
1944–45	..	10,566	350	1,782	..	12,698	7,467	8,488	86	16,042	28,739
1945–46	..	19,832	443	1,192	..	21,467	17,691	10,126	669	28,486	49,953
1946–47	2,506	64,333	2,862	3,372	..	73,072	49,999	25,241	6,267	81,507	1,54,579

ANNEXURE 11.

Export of raw and tanned cow hides from India and Madras.

Years. (1)	All-India raw cow hides. (2)	Madras raw cow hides. (3)	All-India tanned cow hides. (4)	Madras tanned cow hides. (5)
	(Weight in tons.)			
1912–13	41,560	2	10,771	8,874
1913–14	37,152	10	7,919	6,415
1914–15	24,026	3	9,578	7,401
1915–16	34,456	10	12,369	9,945
1916–17	29,082	32	14,350	12,214
1917–18	15,879	N.A.	17,329	14,156
1918–19	14,200	1	25,018	22,150
1919–20	39,427	32	21,559	16,628
1920–21	14,063	63	3,513	2,778
1921–22	22,255	40	5,497	3,784
1922–23	19,902	40	8,530	6,792
1923–24	22,290	2	11,466	9,570
1924–25	24,310	6	11,217	9,276
1925–26	23,286	N.A.	10,684	9,147
1926–27	22,242	1	9,895	8,515
1927–28	30,596	1	13,311	11,609
1928–29	28,065	N.A.	13,695	12,327
1929–30	4,582	Nil.	11,956	10,707
1930–31	17,800	,,	9,900	9,236
1931–32	13,600	N.A.	8,900	8,305
1932–33	11,400	1	7,900	7,481
1933–34	16,900	2	11,400	10,893
1934–35	19,300	21	9,600	9,243
1935–36	19,500	N.A.	11,800	11,427
1936–37	15,000	329	14,900	14,456
1937–38	16,800	105	13,800	13,455
1938–39	13,300	66	12,200	12,011
1939–40	10,154	119	20,600	20,247
1940–41	5,776	33	15,500	15,148
1941–42	7,570	11	13,630	12,817
1942–43	2,920	N.A.	9,097	7,910
1943–44	1,815	,,	5,559	5,109
1944–45	365	,,	3,648	3,479
1945–46	605	,,	4,992	4,869
1946–47	N.A.	,,	4,992	14,187

N.A.—Not available.

ANNEXURE 12.

Export of raw and tanned cow hides from India and Madras.

Years. (1)	All-India raw cow hides. (2)	Madras raw cow hides. (3)	All-India tanned cow hides. (4)	Madras tanned cow hides. (5)
	(Value in rupees.)			
1912–13	5,95,46,310	1,365	1,91,70,000	1,50,45,465
1913–14	5,90,55,105	14,190	1,47,39,810	1,13,30,520
1914–15	3,71,63,295	3,825	2,17,06,890	1,60,00,350
1915–16	5,61,58,920	27,750	2,83,88,910	2,15,59,635
1916–17	5,00,38,890	48,915	4,04,51,430	3,29,69,535
1917–18	2,32,01,970	N.A.	4,71,48,300	3,95,10,855
1918–19	1,88,25,480	1,125	7,02,94,680	6,40,38,285
1919–20	6,34,10,159	42,760	7,15,42,650	4,97,00,710
1920–21	1,62,48,470	44,610	93,11,100	71,39,000
1921–22	1,62,85,914	17,324	1,30,23,200	72,67,265
1922–23	1,93,38,236	76,447	1,99,23,667	1,41,69,579
1923–24	2,40,62,050	1,422	2,76,96,953	2,13,81,489
1924–25	2,88,54,037	5,204	2,82,97,098	2,15,66,523
1925–26	2,77,13,548	N.A.	2,61,86,230	2,12,82,786
1926–27	2,17,06,612	1,590	2,33,65,561	1,93,00,946
1927–28	3,08,04,683	1,961	3,40,19,699	2,83,50,329
1928–29	3,23,06,589	217	3,63,14,478	3,14,20,980
1929–30	2,18,54,000	N.A.	2,80,54,000	2,41,37,000
1930–31	1,41,00,000	,,	2,22,00,000	2,01,45,000
1931–32	76,00,000	,,	1,83,00,000	1,66,03,000
1932–33	54,00,000	449	1,40,00,000	1,30,80,000
1933–34	87,00,000	1,420	2,08,00,000	1,97,30,000
1934–35	95,00,000	11,678	1,63,00,000	1,56,70,000
1935–36	98,00,000	N.A.	1,87,00,000	1,80,80,000
1936–37	96,00,000	6,97,294	2,57,00,000	2,49,44,981
1937–38	1,23,00,000	2,24,536	2,54,00,000	2,48,50,001
1938–39	87,00,000	55,438	1,82,00,000	1,76,67,556
1939–40	68,31,000	1,02,831	3,34,00,000	3,21,42,658
1940–41	50,25,000	38,281	3,42,00,000	3,29,05,872
1941–42	74,00,000	14,687	3,10,00,000	2,79,78,010
1942–43	30,00,000	N.A.	2,06,00,000	1,73,77,138
1943–44	21,46,434	,,	1,50,55,938	1,18,87,591
1944–45	6,40,000	,,	1,21,14,388	1,05,65,912
1945–46	9,82,000	,,	2,09,00,849	1,98,31,740
1946–47	N.A.	,,	N.A.	6,43,33,048

N.A.—Not available.

ANNEXURE 13.

Export of Raw and Tanned Buffalo Hides from India and Madras.

(Weight in tons.)

Year. (1)	All-India raw buffalo hides. (2)	Madras raw buffalo hides. (3)	All-India tanned buffalo hides. (4)	Madras tanned buffalo hides. (5)
1912-13	17,252	202	850	735
1913-14	17,293	182	777	703
1914-15	10,587	44	1,263	1,112
1915-16	8,144	19	1,212	1,175
1916-17	13,055	2	1,617	1,518
1917-18	4,245	4	928	889
1918-19	3,949	N.A.	391	374
1919-20	11,655	36	1,790	1,477
1920-21	3,307	27	271	197
1921-22	2,324	54	506	360
1922-23	3,644	24	695	598
1923-24	5,283	8	844	744
1924-25	4,298	62	940	797
1925-26	4,395	3	474	377
1926-27	5,154	N.A.	507	382
1927-28	8,850	3	1,104	1,024
1928-29	8,034	N.A.	1,401	1,293
1929-30	4,582	„	1,106	1,000
1930-31	4,200	„	700	605
1931-32	2,700	„	600	555
1932-33	1,500	„	400	377
1933-34	2,900	„	800	704
1934-35	2,800	„	700	681
1935-36	2,700	„	1,200	1,089
1936-37	3,300	„	1,400	1,290
1937-38	4,400	Nil	1,300	1,222
1938-39	1,800	„	1,200	1,017
1939-40	1,510	„	3,000	2,441
1940-41	1,272	23	1,800	1,504
1941-42	1,053	1	1,800	1,241
1942-43	1,081	Nil	600	75
1943-44	687	„	380	1
1944-45	Nil	„	1	Nil
1945-46	„	„	5	„
1946-47	„	„	..	538

N.A.—Not available.

ANNEXURE 14.

Export of raw and tanned buffalo hides from Madras Presidency and India.

(Value in rupees.)

Year. (1)	All-India raw buffalo hides. (2)	Madras raw buffalo hides. (3)	All-India tanned buffalo hides. (4)	Madras tanned buffalo hides. (5)
1912-13	1,89,91,065	1,09,710	11,79,180	9,80,130
1913-14	2,20,36,695	89,055	11,26,905	9,92,520
1914-15	1,38,29,895	25,155	23,62,800	19,87,635
1915-16	93,27,555	9,345	21,76,530	20,97,780
1916-17	2,02,74,390	1,035	36,17,265	33,93,690
1917-18	63,76,680	5,850	18,95,085	17,92,755
1918-19	57,23,715	N.A.	6,65,085	6,23,145
1919-20	1,32,27,140	14,950	40,96,500	32,02,800
1920-21	26,38,070	11,140	5,25,120	3,74,010
1921-22	12,13,680	11,336	7,87,379	4,75,200
1922-23	21,05,305	5,512	11,90,336	9,84,317
1923-24	41,76,478	2,520	14,10,032	11,97,236
1924-25	35,06,924	25,043	19,37,610	15,10,940
1925-26	35,40,991	1,092	9,74,223	7,41,001
1926-27	35,66,517	N.A.	9,79,086	7,07,731
1927-28	62,45,029	1,531	22,36,554	20,56,470
1928-29	66,04,012	N.A.	29,65,160	27,29,660
1929-30	41,06,000	„	21,87,000	19,86,000
1930-31	30,00,000	„	13,00,000	11,14,000
1931-32	13,00,000	„	11,00,000	9,60,000
1932-33	6,00,000	„	6,00,000	5,20,000
1933-34	12,00,000	„	12,00,000	11,20,000
1934-35	12,00,000	„	13,00,000	11,60,000
1935-36	11,00,000	„	19,00,000	18,00,000
1936-37	19,00,000	„	24,00,000	21,89,000
1937-38	30,00,000	Nil	21,00,000	19,99,000
1938-39	12,00,000	„	15,00,000	12,67,000
1939-40	10,00,000	„	39,00,000	31,73,000
1940-41	8,91,000	18,000	27,00,000	22,08,000
1941-42	8,40,732	300	30,78,030	20,52,000
1942-43	10,94,166	Nil	12,51,872	1,21,261
1943-44	Nil	„	N.A.	1,000
1944-45	„	„	„	Nil
1945-46	„	„	„	„
1946-47	„	„	„	25,06,000

N.A.=Not available.

ANNEXURE 15.

Export of raw and tanned sheep skins from India and Madras

(Weight in tons.)

Year.	All-India raw sheep skins.	Madras raw sheep skins.	All-India tanned sheep skins.	Madras tanned sheep skins.
(1)	(2)	(3)	(4)	(5)
1905–06	748	65	3,050	2,415
1906–07	1,768	192	3,096	2,609
1907–08	750	195	3,332	2,764
1908–09	465	35	3,159	2,773
1909–10	824	172	3,129	2,685
1910–11	1,175	32	3,140	2,721
1911–12	1,416	3	3,104	2,733
1912–13	1,583	6	3,017	2,641
1913–14	1,653	45	2,483	2,219
1914–15	1,315	12	2,299	1,988
1915–16	1,626	28	2,467	2,042
1916–17	2,266	1	3,390	2,594
1917–18	1,930	214	717	331
1918–19	3,623	1,080	1,504	635
1919–20	3,187	721	3,308	2,842
1920–21	1,319	471	1,823	1,677
1921–22	414	132	2,759	2,516
1922–23	124	69	3,112	2,860
1923–24	171	94	3,554	3,291
1924–25	719	97	3,102	2,763
1925–26	476	114	3,396	3,033
1926–27	158	50	3,336	3,016
1927–28	379	45	3,496	3,123
1928–29	840	107	3,305	2,941
1929–30	236	99	3,411	3,001
1930–31	700	N.A.	3,000	3,678
1931–32	600	38	2,800	2,501
1932–33	600	6	2,500	2,324
1933–34	1,200	92	2,900	2,590
1934–35	1,200	13	2,800	2,629
1935–36	900	28	3,100	2,807
1936–37	600	21	3,600	3,323
1937–38	800	53	3,300	3,130
1938–39	827	26	2,600	2,512
1939–40	775	176	N.A.	2,950
1940–41	391	143	1,400	1,278
1941–42	700	203	2,200	1,971
1942–43	500	136	2,000	1,505
1943–44	655	52	723	1,250
1944–45	1,569	12	1,629	1,218
1945–46	2,516	529	1,524	1,339
1946–47	N.A.	1,160	N.A.	1,771

N. A. = Not available.

ANNEXURE 16.

Export of raw and tanned sheep skins from India and Madras.

(Value in rupees.)

Year. (1)	All India raw sheep skins. (2)	Madras raw sheep skins. (3)	All India tanned sheep skins. (4)	Madras tanned sheep skins. (5)
1905–06	12,64,356	1,01,231	8,218,394	63,43,502
1906–07	31,56,009	3,97,074	1,12,64,175	96,85,046
1907–08	13,56,585	4,12,161	1,25,69,854	1,06,95,827
1908–09	6,03,636	44,273	1,20,07,112	1,08,01,197
1909–10	11,07,705	2,83,470	1,16,66,430	1,02,66,285
1910–11	14,39,805	55,425	1,17,76,500	1,04,24,160
1911–12	19,02,315	4,170	1,17,85,725	1,05,10,815
1912–13	23,29,275	8,610	1,16,53,395	1,02,87,075
1913–14	26,09,985	69,120	95,85,000	85,69,830
1914–15	19,85,325	15,645	78,54,475	75,20,850
1915–16	23,16,570	48,165	98,77,170	81,47,505
1916–17	48,74,520	1,200	2,16,46,215	1,65,95,910
1917–18	38,77,890	2,76,645	62,43,525	31,86,180
1918–19	79,64,025	20,66,370	1,37,42,205	55,99,515
1919–20	71,49,910	17,63,160	2,93,26,280	2,57,68,660
1920–21	20,32,120	7,39,370	1,26,70,970	1,16,26,460
1921–22	5,46,619	1,09,151	1,57,35,839	1,42,09,989
1922–23	3,76,893	94,389	1,62,66,325	1,51,22,872
1923–24	3,84,254	1,04,139	1,87,34,621	1,75,30,069
1924–25	9,79,549	1,13,472	1,78,03,332	1,61,53,113
1925–26	5,74,976	1,44,933	1,99,59,400	1,81,62,035
1926–27	2,57,048	1,15,168	2,10,22,476	1,94,43,076
1927–28	5,97,284	79,830	2,14,77,578	1,95,58,445
1928–29	11,48,578	1,83,912	2,03,95,483	1,83,56,590
1929–30	N.A.	1,61,844	2,03,83,158	1,79,20,000
1930–31	9,39,327	N.A.	1,77,00,000	1,57,93,000
1931–32	5,67,608	60,000	1,63,00,000	1,24,82,000
1932–33	5,27,056	20,000	1,69,00,000	1,1[illegible],60,000
1933–34	11,33,083	2,20,0[illegible]0	1,36,00,000	1,25,70,000
1934–35	15,71,812	20,000	1,34,00,000	1,26,50,000
1935–36	14,30,000	20,000	1,43,00,000	1,36,20,000
1936–37	14,60,000	31,434	1,68,00,000	1,57,51,074
1937–38	13,70,000	96,600	1,60,00,000	1,53,43,634
1938–39	9,60,0[illegible]0	37,001	1,25,00,000	1,20,20,936
1939–40	11,32,000	3,25,696	1,45,00,000	1,36,60,068
1940–41	8,00,000	1,47,919	65,00,000	60,83,582
1941–42	55,00,000	1,83,464	1,05,00,000	95,31,879
1942–43	19,00,000	1,49,621	98,00,000	77,10,166
1943–44	61,88,594	72,517	98,53,596	68,15,391
1944–45	1,10,16,000	22,547	1,06,64,208	84,88,259
1945–46	2,22,17,000	14,92,004	1,19,01,888	1,01,25,807
1946–47	N.A.	42,05,644	N.A.	2,52,40,925

N.A.=Not available.

ANNEXURE 17.

Export of raw goat skins and tanned goat skins from India and Madras.

(Weight in tons.)

Year.	All-India raw goat skins.	Madras raw goat skins.	All-India tanned goat skins.	Madras tanned goat skins.
1905–06	25,036	4,514	3,682	2,407
1906–07	19,328	4,022	4.194	2,630
1907–08	14,061	2,400	4,125	2,532
1908–09	22,414	2,028	3,750	2.721
1909–10	28,957	3,256	3,218	2,394
1910–11	25,446	1,836	3,779	2,917
1911–12	24,064	1,543	4,183	3,232
1912–13	26,047	2,457	3,087	2,386
1913–14	22,668	1,348	3,706	2,969
1914–15	19,104	817	3,064	2,379
1915–16	19,998	1,230	3,538	2,852
1916–17	26,145	1,494	4.273	3,431
1917–18	20,427	1,211	685	184
1918–19	12,345	2,712	1,110	328
1919–20	31,250	3,337	1,542	1,267
1920–21	10,382	1,305	824	691
1921–22	21,689	2,897	1,200	1,007
1922–23	20,631	2,108	1,491	1.156
1923–24	19,073	2,718	1,363	997
1924–25	15,013	1,706	3.234	2,504
1925–26	19,249	1,734	2,943	2,490
1926–27	19,266	1,264	3,686	3,054
1927–28	18,706	1,146	3,924	3,200
1928–29	21 607	1,430	3,659	3,072
1929–30	20,628	902	3,184	2,674
1930–31	17,400	N.A.	3,100	2,779
1931–32	12,200	1,238	2,600	2,394
1932–33	12,200	773	2,900	2,696
1933–34	18,200	911	3,500	3,264
1934–35	13,900	491	3,600	3,364
1935–36	20,100	1,617	3,100	2,887
1936–37	18,000	875	3,800	3,597
1937–38	18,600	1,131	3,400	3,261
1938–39	18,700	989	2,800	2,683
1939–40	18,700	1,527	N.A.	2,542
1940–41	19,002	4,751	1,200	1,166
1941–42	25,100	5,165	1,400	1,294
1942–43	15,500	420	1,700	1,041
1943–44	15,343	606	1.909	749
1944–45	9,582	517	2,069	1,289
1945–46	7,278	364	3,497	2,642
1946–47	N.A.	825	N.A.	4,856

N.A.—Not available.

ANNEXURE 18.

Export of raw and tanned goat skins from India and Madras.

(Value in rupees.)

Year.	All-India raw goat skins.	Madras raw goat skins.	All-India tanned goat skins.	Madras tanned goat skins.
1905–06	4,58,40,498	89,16,793	1,24,81,692	82,79,377
1906–07	3,84,34,853	88,79,765	1,55,35,578	1,07,35,166
1907–08	2,47,04,592	53,74,402	1 56,22,283	1,07,02,428
1908–09	3,35,37,060	42,45,030	1,49,16,088	1,15,54,764
1909–10	4,25,27,775	68,73,150	1,31,97,405	1,02,47,445
1910–11	3,33,16,560	40 03,560	1,60,00,980	1 29,96,525
1911–12	3,12,32,340	31,37,130	1,75,34,070	1,43,04,330
1912–13	3,41,79,240	48,48,690	1,30,78,575	1,05,56,325
1913–14	3,12,76,980	25,30,620	1,61,06,505	1,31,18,760
1914–15	2,34,15,270	17,00,895	1,32,44,475	1,02 64,170
1915–16	2,75,48,145	25,85,040	1,48,04 985	1,21,99,905
1916–17	6,42,35,550	46,01,730	2,60,05,230	2,12 34,645
1917–18	4,54,83,420	35,14 530	64,92,720	25,85,775
1918–19	5,91,48,075	89,49,765	1 07,19,315	31,93,260
1919–20	14,39,43,250	1,75,09,950	1,72,83,120	1,51,49,220
1920–21	3,01,26,850	40,65,880	73,33,910	64,35,460
1921–22	4,09,59,761	62,37,161	82,54,894	71,32,981
1922–23	3,45,38,548	51,00,017	1,04,23 497	88,06,390
1923–24	4,00,28,720	66,58,113	85,01,611	65,86,930
1924–25	3,29,69 245	42,54,371	2,04,28,014	1,70,04,119
1925–26	3,87,43,388	44,00,284	1,92,28,261	1,68,78,407
1926–27	4,23,40,598	31,97,216	2,44,77,140	2,09,79,342
1927–28	4,39,33,201	29,99,151	2,62,10,215	2,23,82,361
1928–29	4,95,64,588	37,32,976	2,54,27,266	2,17,75,401
1929–30	4,43,16,000	24,83,257	2,25,15,842	1,91,90,000
1930–31	1,78,65,634	N.A.	1,78,00,000	1,57,35,000
1931–32	1,63,19,960	26,60,000	1,63,00,000	1,50,96,000
1932–33	1,69,38,013	15,80,000	1,69,00,000	1,60,10,000
1933–34	1 72,60,891	21,40,000	1,73,00,000	1,60,90,000
1934–35	1,82,91,719	9,10 000	1,83,00,000	1,73,00,000
1935–36	2,83,90 000	27,00,000	1,42,00,000	1,35,20,000
1936–37	2,51,60 000	20,14,963	1,84,00,000	1,75,21,800
1937–38	2,41,40,000	31,08,589	1,63,00,000	1,56,95,092
1938–39	2,39,40,000	21,50,479	1,22,00,000	1,18,45,184
1939–40	3,10,29,000	40,77,234	1,18,00,000	1,11,50,221
1940–41	2,36,82,000	56,43,411	50,00,000	48,75,455
1941–42	3,26,00,000	57,40,876	66,00,000	61,62,264
1942–43	2,62,00,000	8,36,855	82,00,000	47,38,805
1943–44	2,93,46,228	12,39,531	1,03,45,303	37,50,766
1944–45	2,41,40,659	11,13,721	1,21,94,192	74,66,829
1945–46	2,30,05,000	9,46,062	2,36,86,674	1,76,91,059
1946–47	N.A.	42,71,789	N.A.	4,99,98,988

N.A. = Not available.

ANNEXURE 19.

Export of raw hides and skins from India and Madras.

Year.	All-India. TONS.	Madras. TONS.	All-India. RS. (LAKHS.)	Madras. RS. (LAKHS.)
Raw hides and skins.				
1936–37	51,084	1,241	443	28
1937–38	51,076	1,290	504	33
1938–39	39,270	1,082	384	23
1939–40	30,880	1,825	399	45
1940–41	26,600	4,950	308	58
1941–42	34,800	5,380	473	59
1942–43	20,500	556	333	10
1943–44	18,456	658	385	13
1944–45	11,516	535	258	11
1945–46	9,599	893	466	24
Tanned hides and skins.				
1936–37	25,700	24,313	682	643
1937–38	23,700	22,961	645	625
1938–39	20,200	19,597	476	460
1939–40	34,760	30,468	698	661
1940–41	21,800	20,894	559	513
1941–42	20,600	18,883	563	504
1942–43	15,300	12,183	447	339
1943–44	10,926	8,062	397	255
1944–45	8,069	6,658	400	287
1945–46	10,563	9,228	634	560

ANNEXURE 20.

*Statement of tanneries.**

NORTH ARCOT DISTRICT.

RANIPET.

1 A. B. Mohamed Sulaiman Sahib & Co.
2 V. Mohamed Haneef & Co.
3 K. O. Mohamed Rafique & Co.
4 C. Mohamed Shabir Ahmed Sahib & Co.
5 M. Vajravelu Mudaliyar & Co.
6 C. K. Narashima Mudaliyar & Bros.
7 A. V. M. Krishnamoorthy & Co.
8 R. D. M. Natesa Mudaliyar & Co.
9 A. P. Mahadeva Mudaliyar & Co.
10 A. J. Venugopala Mudaliyar & Co.
11 T. M. Rahmatulla Sahib & Co.
12 A. M. Moulvi Adam Mohideen Sahib & Co.
13 S. M. Ahamed Ali Sahib.

NORTH ARCOT DISTRICT—*cont.*

RANIPET—*cont.*

14 N. C. Thandavarayan & Co.
15 V. T. K. R. Srininivasa Mudaliyar & Co.
16 A. N. Munusamy Mudaliyar & Co.
17 A. P. Annamalai Mudaliyar & Co.
18 S. M. Abdul Jamal Sahib & Co.
19 P. R. M. Abdul Rahman Sahib & Co.
20 S. Hafeez Mohamed Abdulla Sahib & Co.
21 A. K. Rangasamy Naicker & Co.
22 Fazal Bhai Dala Sait & Co.
23 A. P. Subramania Mudaliyar & Co.
24 A. Mohamed Ismail & Co.
25 A. M. Natesa Mudaliar.

N.B.—* Since the above list was prepared certain charges are reported to have occurred such as the closure of certain tanneries, certain new tanneries coming into being, certain others changing lands and so on.

NORTH ARCOT DISTRICT—*cont.*

RANIPET—*cont.*

26 A. M. Ayyasami Mudaliar.
27 Sardar Leather Company.
28 K. P. S. Sultan Mohideen Sahib.
29 A. M. Thameen Sahib.
30 P. Hajee Badsha Sahib.
31 M. Hasan Ali.
32 S. Hajee Mohamed Sayeed.
33 K. Abdul Hakim.
34 Mohamed Azmathulla Sahib.
35 United Leather Company.
36 Turab & Co.
37 N. G. Natesa Mudaliyar.

VANIYAMBADI-CUTCHERRY ROAD.

38 Naivasal Mohamed Hussain Sahib & Co.
39 Kothwal Haji Abdul Karim Sahib & Sons.
40 K. B. Abdul Salam Abdul Azeem & Co.
41 S. T. Mohamed Hussain Sahib & Co.
42 T. A. A. M. Abdul Hameed Sahib & Co.
43 A. M. Abdul Latiff Sahib & Co.
44 Naivasal Mohamed Ebrahim Sahib & Co.
45 V. P. Habib Rahman & Co.
46 V. S. K. A. Suravelu Chettiyar & Co.
47 K. H. Abdul Khader Laulbatcha Sahib & Co.
48 Gundu Abdul Subhan Sahib & Co.
49 C. S. Abdul Majeed Sahib & Co.
50 C. L. H. Abdul Subhan Sahib & Co.
51 P. R. Mohamed Fazullah Sahib & Co.
52 P. R. Mohamed Abdul Rahman Sahib & Sons.
53 P. Abdul Azeez Sahib & Co.
54 M. Ahmed Hussain Sahib & Co.
55 P. N. T. K. Abdul Rasheed Sahib & Co.
56 Katheeb Tanning Co.
57 Kaka Hajee Mohamed Ishaq Sahib & Co.
58 T. Abdul Wahab Sahib & Co.
59 K. Mohamed Zackria Sahib & Co.

VALAYAMBUT.

60 Obeid Khaleel & Co.
61 K. B. Abdul Salam Sahib Abdul Azeem Sahib & Co.

AMBUR TRUNK.

62 R. C. R. M. Rangasamy Chettiar & Co.
63 Mulakadai Abdul Majeed Sahib & Co.
64 Mulakadai Abdul Hameed Sahib & Co.
65 Naivasal Mohamed Hussain Sahib & Co.

NORTH ARCOT DISTRICT—*cont.*

PUDUR.

66 Mian Hajee Ismail Sahib & Co.
67 Mian Hajee Batcha Mian Sahib & Sons.
68 N. C. Rajasekaran & Co.
69 Asangani Abdul Salam Sahib & Co.
70 O. S. Abdul Azeez Sahib & Sons.
71 K. M. Zackria Sahib & Co.
72 A. Abdul Jabar Sahib & Co.
73 C. Abdul Mallick & Co.

ALANGAYAM ROAD.

74 C. Abdul Razack Sahib & Co.
75 Malang Abdul Jabbar Sahib & Co.
76 C. B. Batcha Miyan Sahib.
77 A. V. Sayaban Sahib & Co.
78 P. A. Abdul Hameed Sahib & Co.
79 Mulakadai Ahmed Hussain Sahib & Co.

OODAYANDIRAM.

80 C. Haji Zainullabdeen Sahib & Co.
81 K. M. Abdul Wahab Sahib & Co.
82 C. S. Iyadurai Naidu & Co.
83 C. Abdul Shukoor Sahib & Co.
84 K. H. Mohamed Hussain Sahib & Co.
85 P. A. Mohamed Yusuf Rahmatulla Sahib & Co.
86 Malang Abdul Azeez Sahib & Co.
87 R. V. Suravelu Chetty.

CHANGALKAIPETRI.

88 S. K. Sanjan Chettiyar & Co.
89 Koona Abdul Karim Sahib & Co.
90 V. S. K. A. Suravelu Chettiyar & Co.
91 V. S. K. Ramasamy Chettiyar & Co.

VEPEMMET.

92 Jama Abdul Khudus Sahib & Co.
93 T. L. Venkatachalam Mudaliyar & Co.
94 Moda Mohamed Ibrahim Sahib & Co.
95 C. Mahadeva Chettiyar & Co.

PALLIPET.

96 C. L. Abdul Khudus Sahib & Co.

AMBUR.

97 A. Abdul Shukur & Co.
98 Nabi Isaq & Co.
99 N. Mohamed Baquir Brothers.
100 H. Abdul Khader.
101 N. Mohamed Habibulla.
102 V. L. Mohamed Usman.
103 N. A. Karim Sahib.
104 P. Abdul Matheen Sahib.
105 A. A. Samad Kasim.
106 P. H. Mohamed Ghouse.
107 Abdul Khader Sahib & Co.
108 S. Mohamed Haneef Sahib.

NORTH ARCOT DISTRICT—*cont.*

TIMIRI.

109 T. V. Devaraja Reddiyar.
110 T. V. Ramanatha Reddiar.
111 Periappa Ranganatha Reddiar & Co.
112 J. P. T. V. Devaraja Reddiar & Co.

TIRUVALLAM.

113 V. Abdul Jabbar & Co.
114 K. T. Abdul Rashid.
115 C. M. Sana Ullah & Co.

GUDIYATHAM.

116 M. Akbar Badsha Khaleel Ahmed & Co.
117 H. M. S. Abdul Habionaj & Co.
118 Haji Abdul Rahim Sahib.
119 A. B Abdul Wahab Sahib.
120 K. A. Abdul Jaleel Sahib (Kathuri Kuppam).
121 K. A. Abdul Jaleel Sahib (Ammanam Kuppam).
122 P. A. Abdul Jabar & Co.
123 Patel Vajith Sahib.

WALAJAHBAD.

124 P. K. Murthy & Co.
125 Janab R. A. S. Mohamed Marakayar.
126 K. Abdul Gaffoor Sahib.
127 K. B. Mohideen Sahib.
128 Sayeed Gaffar Sahib.
129 Abdul Subhan Sahib.
130 A. Abdul Hakim Sahib.
131 S. A. K. Mohamed Safrulla Sahib & Co.

PUTTATHAK.

132 K. T. A. Basha and T. A. Majeeth Sahib & Co.
133 M. Abdul Kadar Sahib & Co.

MEL VISHARAM.

134 P. Hajee Badsha Sahib.
135 S. M. Abdul Majeeth Sahib.
136 C. Basheer Ahmed Sahib & Co.
137 F. K. Haseeb & Co.
138 S. Zaffar Ahmed & Co.
139 T. M. Abdul Jabbar Sahib.
140 M. Abdul Khadar Sahib.
141 S. A. Mohamed Safulla Sahib & Co
142 S. Hajee Abdulla Sahib & Sons.
143 T. Mohamed Dustigar Sahib.
144 G. Mohamed Ismail Sahib.

VALATHUR.

145 Patel Abdul Wajid Sahib and Abdul Majeeth Sahib.
146 M. Abdul Karim & Sons.
147 K. Salahudin & Co.
148 A. Abdul Latiff Sahib.
149 A. K. K. Abdul Salam & Co.

THUTHUPET.

150 D. M. Abdul Rashid Sahib.

NORTH ARCOT DISTRICT—*cont.*

VELLORE.

151 Roshan & Co., Sembakkam.
152 Ameer Ahmed & Co., Sembakkam.
153 S. M. Abdul Zamit and Sons, Perumughai.
154 K. H. M. Ishaq & Co., Perumughai.

ARCOT.

155 A. P. Balasundara Mudaliar.
156 R. D. M. Natesa Mudaliar.
157 C. M. Ismail & Co.

POLUR.

158 V. A. K. Mohamed Haneef Sahib & Co.
159 Mohamed Abdul Majeeth Sahib & Co.

UPPUPET.

160 S. Abdul Kareem Abdul Jaleel Sahib & Co.

TIRUVALLAM.

161 C. Mohamed Sanaullah & Co.

ARNI.

162 M. N. Rajaram Mudaliar.

PERNAMBUT.

163 K. Mohamed Ghouse and P. A. Khalick.
164 P. Hajee Abdul Kayyum & Co.
165 M. A. Abdul Rahim and Mohamud Ibrahim Sahib & Co.
166 M. A. Mohamed Ibrahim.
167 K. Abdul Karim Sahib and Abdul Wahab Sahib.
168 C. Mohamud Fazlullah Sahib and Shabir Ahmed Sahib & Co.
169 V. Mohamed Saliah and Mohamed Saleem.
170 M. B. Abdul Hakim Sahib.
171 P. H. Abdul Wahab Tannery, I.
172 M. Abdulla Batcha Sahib.
173 M. M. M. Ismail Sahib B Shop.
174 Mukanna Abdul Rahim.
175 M. Abdul Mallick Sahib.
176 M M. M. Ismail Sahib A Shop.
177 K. Haji Mohamud Ishaq Sahib.
178 C. A. Mohamud Bashir Abdul Hakim & Co.
179 M. A Abdul Huq.
180 Mohamud Kasim Sahib & Co.

KATPADI.

181 V. T. Kannapa Mudaliar.
182 V. A. G. Natarajan & Co.
183 H. N. S. Abdul Rahman & Sons.
184 K. H. B. Abdul Rahman & Sons.
185 S. M. Zaiuddin Sahib.
186 Dokku Mohamud Khaleel Sahib & Co.
187 V. Abdul Gafoor Sahib.
188 K. S. Abdul Munaf Sahib & Co.
189 S. Abdul Wahab and K. Azeezndin Sahib,

NORTH ARCOT DISTRICT—*cont.*

AMMOOR.

190 Abdul Azeez Sahib & Co.
191 C. C. Mohamud Hussain Sahib, Pernambut.
192 S. A. Basheer Ahmed Sahib, Mel Visharam.

MATHURAI DISTRICT.

DINDUGAL.

193 M. Mohamed Hussain.
194 K. M. Mohamed Abdul Khader.
195 Q. N. A. M. Abdul Rahiman & Co.
196 Jamaludeen & Srinivasa Iyer Co.
197 M. Mohamed Haneef & Bros.
198 Annamalai Chettiar.
199 K. Padmanaba Ayyar.
200 Mohamed Haneef Brothers.
201 Natesam Pillay.
202 K. N. Varusai Mohideen Rowther.
203 V. K. Kothan Servai.
204 M. Sayeed Ebrahim.
205 B. Abdul Razak Rowther.
206 S. N. Mohamed Rehaq.
207 P. K. Papiah Naidu.
208 A. S. Vellayappan.
209 S. Ramasamy Naidu & Bros.
210 Abdul Rahiman Pinjabi.
211 Dost Mohamud Sahib, National Leather Company.
212 V. M. Mohideen Rowther.
213 V. S. Peer Mohamed.
214 T. Abdul Rashid.
215 K. S. V. S. Mohamed Zackria.
216 K. A. Mohamed Abdulla.
217 C. K. M. A. Abdul Rahim & Co.
218 S. Nazar Mohamed.
219 S. A. Mohamed Abdul Khader.
220 S. Mohamed Shaik Dawood.
221 H. M. S. Abdul Rahim & Co.
222 E. P. Meera Mohideen.
223 S. N. M. M. Mohamed Hussain & Co.
224 S. Ebrahimsa Rowther.
225 C. S M. Sambasivam Pillay.
226 P. M. Mohamed Ayoob.
227 Mappilai Meera Mohideen Sahib & Sons.
228 O. S. Raiabeevi.
229 M. M. P. Mohamed Yussuf Sahib.
230 P. P. Munikannu Nadar.
231 M. P. Gulam Mohideen.
232 M. H. Y. Mohamed Ebrahim Bros.
233 A. Ahamed Hussain.
234 S. B. Bhava Bahurudeen Rowther.
235 T. R. E. Abdul Rahiman.
236 R. N. Samba Naidu.
237 C. N. Maniyakarar.
238 P. K. Alagirisamy Naidu.
239 M. E. Mohamed Gani.
240 M. J. Jamal Mohideen Sahib.
241 K. Mohamed Sulaiman.
242 S. K. M. Sheik Dawood.
243 Meenatchi & Co.
244 Virudhunagar N. Jamal Mohideen.
245 M. E. Rahmatullah Sahib & Co.

CHINGLEPUT DISTRICT.

PALLAVARAM.

246 Gordon Woodroffe Leather Manufacturing Co., Ltd.
247 S M. Nathan & Sons.
248 S. L. Gangiah No. 1.
249 S. L Gangiah No. 2.
250 G. Govindarajulu Naidu.
251 Miya Haji Abdul Khaliq Sahib.
252 M. Abdul Rashid.
253 M. Haji Ismail Sahib.
254 A. Abdul Karim Sahib.
255 A. M. Moulvi Adam Mohideen Sahib.
256 Masab Abdul Salam.
257 Sher Ali.
258 Mohamed Zafar & Co.
259 K. Subhan Baig.
260 A. Annasami Mudaliar.
261 C. Shanmugam Chettiar.
262 M. Dost Mohamed Sadiq.
263 S. T Mohamed Ebrahim.
264 Manikkam & Rao Co.

CHROMEPET.

265 Chrome Leather Company.
266 K. Mohamed Sahib and W. Khaleel.
267 S. A. N. Mohamed Rowther.
268 Mohamed Mastan Sherriff.
269 A. M. Abdul Karim & Co., Pallikonda Tannery.
270 M. Haji Abdul Kaliq Sahib & Bros.
271 Sanjee Tannery, Pambal.
272 A. M. Abdul Karim & Co.
273 P. R. M. Abdul Rahman & Co.
274 Srinivasan & Co.
275 C. Kalyan & Co.
276 Palaniappa Chettiar.
277 Jalal Mohamed Ebrahim

MADAVARAM.

278 M. J. Jamal Mohideen Sahib (Jamal Modern Tannery).

PERAMBUR.

279 M. Nazir Hussain Tannery.
280 Madras Leather Factory.
281 Fazl Karim Naickers Shop.
282 P. Haji Badsha Sahib & Co.
283 South Indian Leather Company.
284 Srinivas & Company.
285 Shanjeemal Tannery.
286 Mohamed Azeem Abdul Bari & Co.
287 Ibrahim Ismail Tannery.
288 Dost Mohamed & Co.
289 Madras Industrial Leather Company.
290 F.C. Company.
291 Roshan Company.
292 Amir Ahmed & Co.
293 Abdul Shukur Sahib & Co.
294 S. Mohamed Sayeed Sahib.
295 S. Mohamed Amins 'Eri' Tannery.
296 M. Karim Baksha Mana.
297 Syeed Mohamed.
298 Mysindia's Glue Works.

COIMBATORE DISTRICT.

299 Guruviah Naidu and Govindasami Naidu & Co.
300 V. Balasamy Naidu & Co.
301 P. S. G. Ganga Naidu & Co.
302 Abdul Wahab.
303 R. Varadarajulu Naidu.
304 Varasai Marakayar.
305 Asan Kadar Rowther.
306 Pathai Muthu and Sankaran.
307 S. K. Rangasami Naidu.
308 Shamsudin Sahib.
309 Coimbatore Leather Company.
310 Khadar Batcha Sahib.
311 L. M. Mohamed Ebrahim Ismail & Co.

ERODE.

312 E. K. Mohamed Abdul Kadar Sahib.
313 E. K. Haji Mohammad Meera Sahib.
314 E. K. M. Abdul Jaleel Sahib and E. K. Ahmed Batcha Sahib Brothers.
315 M. S. Mohideen Sahib.
316 M. S. Mohammad Habibullah & Sons.
317 A. B. Sheik Dawood Sahib.
318 K. K. S. Kader Mohideen Sahib.
319 S. E. G. Mohammad Ebrahim Sahib & Sons.
320 S. E. G. Mohammad Ismail Sahib & Sons.
321 K. K. K. Abdul Gani Sahib & Bros.
322 A. O. Khader Hussain Miah.
323 G. K. Mohammad Yusuf Sahib.
324 C. S. M. Abdul Rahman.
325 C. M. Abdul Rahman.
326 S. E. G. Mohammad Khader Mohideen.
327 P. R. S. Ghulam Rasool Sahib.
328 E. M. Ismail Mohideen.
329 P. K. Nadhan.
330 G. A. K. Khader Mohideen Sahib.
331 S. K. M. Abdul Khader Sahib.
332 E. G. Mohamed Ebrahim & Sons.
333 E. K. Mohammad Ebrahim Sahib & Sons.
334 Abdul Rahiman and Rasituram.

PODANUR.

335 V. G. Tannery.
336 V. B. Tannery.
337 V. Govindaswami Naidu.
338 H. M. S. Abdul Rahiman 'A' and West Tannery.

DHARAPURAM.

339 Sultan Rowther.
340 Bhava Rowther.
341 Mohammad Rowther.
342 Meera Mohideen Rowther.
343 Abdul Khader Rowther.

TIRUCHIRAPPALLI DISTRICT.

344 M. K. Y. Mohammad Ebrahim & Co.
345 D. & S. Company.
346 N. M. Company.
347 V. S. Mohammad Ibrahim Sahib & Co.
348 M. K. Muhammad Ibrahim & Sons.
349 Roshan Oomer Karim.
350 K. Shaik Mohideen.
351 M. B. Sultan Mohideen.
352 R. E. K. Mohammad Ismail.
353 G. Sheik Mohammad.
354 R. E. Abdul Khader.
355 S. K. Kalanther Mohideen.
356 M. S. Abdul Rahim.
357 K. Mohammad Ebrahim.
358 A. S. Ahmed & Co.
359 G. A. Shukoor & Co.
360 K. S. Mohammad Abdul Khader.
361 M. S. G. Mohammad Kasim.
362 Nazeer Hussain Basheer Ahmed.
363 N. V. Mohammad Ibrahim.
364 S. S. Abdul Samad.
365 P. Abdul Khudus.
366 N. V. Haji Mohammad Kasim.
367 A. Mohammad Abbas.
368 P. M. A. Shaik Mohideen.
369 A. E. Hakim.

VIZAGAPATNAM DISTRICT.

VIZIANAGARAM.

370 Namazi Abdul Khader Khaliq & Co.
371 M. A. Mohammad Ismail & Mohammad Isaq.
372 K. Haji Abdul Khader Lal Batcha Sahib.
373 C. Abdul Subhan Abdul Samad & Co.
374 C. A. Khaleel Ahmed Mumtaz.
375 M. A. Ravoof.
376 V. Abdul Gafoor Sahib.
377 K. Abdul Shukoor & Bros.
378 T. Rahimatullah & Co.
379 Naivasal Mohammad Husain Sahib & Co.
380 P. Anwar Badsha Sahib.
381 S. Haji Abdul Sattar.
382 J. Abdul Rahiman.
383 Srinivas & Co.
384 A. S. Muzafar Sahib & Co.
385 M. Sadulla Badsha Sahib.
386 Chowdry Md. Inayatulla & Co.
387 Abdul Razack and A. E. Abdul Shukoor.
388 Nishat & Co.
389 C. A. Haji Mohammad Kasim Sahib & Co.

WEST GODAVARI DISTRICT.

390 M. K. M. Shabul Hameed & Co.
391 M. R. Mohammad Noohu & Co.
392 V. M. Sayeed Mohammad & Co.
393 S. R. Abdul Rahman & Co.
394 F. G. Iqbal & Co.
395 M. M. Abdul Azees & Co. 1
396 Do. 2.
397 Do. 3.
398 M. A Noor Mohammad & Co.
399 L. M. S. Sad k Thambi & Co.
400 M. A. S. Haji Mohideen & Co.
401 K. M. S. Sayeed Mohummad & Co.
402 T. A. Sayeed Mohammad & Co.
403 M. K. M. K. Mohammad Oisma Lab'ai & Co
404 K. A. S. Mohammad Abdul Khader & Co.
405 K. S. M. Mohideen Abdul Kader & Co. (Kulam Tannery.)

KRISHNA DISTRICT.

VIJAYAVADA.

406 N. M. K. Abdul Majeeth Sahib & Co.
407 M. M. Ismail Brothers.
408 K. Abdul Mannan Sahib & Co.
409 B. Abdul Khudus Sahib & Co.
410 K. S. Abdul Azeez.
411 V. H. Abdul Rahiman Sahib, No. 2.
412 P. Haji Badsha Sahib & Co.
413 P. Mohammad Pakrish Tannery.
414 Ra'im Khan.
415 Mohammad Ismail & Brothers.
416 Salamudeen Sahib Tannery.
417 V. Abdul Rahiman Sahib & Co.
418 Iqbal & Co.
419 K. Haji Ajimuddeen Sahib & Co.
420 A. Abdul Khayoom Sahib.
421 V. Haji Mohammad Yacoob Sahib.

BELLARY DISTRICT.

422 K. H. A. L. Co., Aldahalli.
423 K. Haji Abdul Khader Sahib Laul Batcha Sahib & Co., Cowl Bazaar, Bellary.
424 Abdul Wahid Tannery, Adoni.
425 K. Mohamed Yahya Sahib & Co.
426 K. Abdul Rahim & Co.
427 K. Mohamed Ismail Sahib, Parvatipur.
428 K. Balappa & Co., Adoni.
429 K. Abdul Rahiman Sahib, Adoni.
430 Mohamed Buraudeen Sahib, Adoni.
431 Patel Mohamed Fazullah Rahiman Sahib, Adoni.
432 Arundhatya Leather Working Co-operative Society, Alur.
433 Varadachari & Co., Hospet.

NELLORE DISTRICT.

REDLIKONDA.

434 Bawa Sanjappa & Sons.
435 Mochi Nagappan Skins Mundi and Tannery.

AKBARABAD, ATMAKUR.

436 Sheik Khaja Miyan.

NAYUDUPET.

437 S. Masman Miyan.
438 S. Abdul Azeez & Co.
439 K. Azeez & Co.
440 G. M. Ebrahim.

PEDDARAJUPALAYAM.

441 T. Maula Sahib.
442 T. Siddhi.

GUNTUR DISTRICT.

GUNTUR.

443 P. Abdul Subhan Sahib & Co.
444 M. M. A. K. Mohideen Thambi & Co.
445 P. Abdul Hai & Co.

MANGALAGIRI.

446 Bulla Venkatasubba.
447 Pimidi Mukkala Ramulu.

ANANTAPUR DISTRICT.

448 A. Thippanna Rayappa, Timmancherala.
449 N. S. Abdul Rashid.
450 M. Sannappa, Anantapur.
451 Silar Sarmasth and Abdul Razack Sahib, Uruvakonda.
452 Abdul Razack Sahib, Kadiri.

EAST GODAVARI DISTRICT.

453 The Southern India Manure & Tanning Works, Samalkot.
454 C. Haji Joonulla Abdin Tannery, Rajahmundry.
455 K. M. S. Sadak Thambi, Rajahmundry.
456 N. Mohamed Amin & Co., Rajahmundry.

SOUTH ARCOT DISTRICT.

LAKSHMINARAYANAPURAM.

457 Mohideen & Co.
458 Khader Mohamed & Co.
459 M. K. E. P. Mohamed Saragathullah.
460 S. Yusuff & Co.

TIRUNELVELI DISTRICT.

MELAPALAYAM.

461 V. Peer Mohamed Sahib.

462 M. A. M. Sayeed Mohamed.

463 V. A. Mohamed.

SANKARNKOIL.

464 K. M. S. Mohamad Kadirvara Marakayar.

SALEM DISTRICT.

465 P. C. R. Ethirajulu Naidu.

466 A. P. Manikka Chettiar (Sri Sai Baba & Co.).

CHITTOOR DISTRICT.

467 M. M. Mohideen Thambi & Co.

468 S. J. Ismail & Co., Tirutani.

NILGIRIS.

469 The Nilgiris Tannery & Co., Mettupalayam.

ANNEXURE 21.

Statement showing the imports and exports of hides-raw in respect of the Province of Madras.

Year.	Imports.				Exports.				Net imports.
	Foreign.	Coastwise.	Railborne.	Total.	Foreign.	Coastwise.	Railborne.	Total.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	TONS.	TONS.	TONS.	TONS.	TONS.	TONS.	TONS.	TONS.	TONS.
1933–34	585	2,865	12,938	16,388	7	Nil	997	1,004	15,384
1934–35	560	3,120	7,474	11,154	23	9	1,057	1,089	10,065
1935–36	533	4,500	8,133	13,166	27	9	2,088	2,124	11,042
1936–37	506	3,629	17,129	21,264	344	15	1,107	1,466	19,798
1937–38	1,012	1,822	13,780	16,614	105	7	902	1,014	15,600
1938–39	927	940	15,937	17,804	66	72	615	753	17,088
1939–40	1,241	1,781	29,429	32,451	120	153	1,174	1,447	31,004
1940–41	1,321	527	21,674	23,522	56	43	998	1,097	22,425
1941–42	1,520	216	21,179	22,915	12	45	1,330	1,387	21,528
1942–43	1,011	404	19,493	20,908	Nil	62	1,525	1,587	19,322
1943–44	236	3,905	10,715	14,856	Nil	225	2,807	3,032	11,824
1944–45	28	6,495	N.A.	..	6	4	N.A.	..	..
1945–46	2	2,331	N.A.	..	Nil	14	N.A.	..	..
1946–47	266	1,678	N.A.	..	(cwt) 6	4	N.A.	..	..
1947–48	288	2,705	N.A.	..	Nil	43	N.A.	..	..

NOTE.—N.A. = Not available.

ANNEXURE 22.

*Statement showing the **imports** and exports of skins-raw in respect of the Province of Madras.*

Year. (1)	Imports. Foreign. (2)	Imports. Coastwise. (3)	Imports. Railborne. (4)	Imports. Total. (5)	Exports. Foreign. (6)	Exports. Coastwise. (7)	Exports. Railborne. (8)	Exports. Total. (9)	Net imports. (10)
	TONS.	TONS.	TONS.	TONS.	TONS.	TONS.	TONS.	TONS.	TONS.
1933–34	543	1,769	9,255	11,567	1,006	2	669	1,677	9,890
1934–35	581	1,873	8,768	11,222	504	3	704	1,211	10,011
1935–36	690	1,833	9,407	11,930	1,643	Nil	1,000	2,643	9,287
1936–37	489	2,842	10.566	13,897	897	9	744	1,650	12,247
1937–38	1,022	1,198	10,007	12,227	1,184	9	607	1,800	10,427
1938–39	1,042	901	7,548	9,491	1,018	48	586	1,652	7,839
1939–40	1,260	1,147	9,379	11,786	1,705	139	800	2,644	9,142
1940–41	1,067	255	8,801	10,123	4,894	13	865	5,772	4,351
1941–42	1,248	193	11,746	13,185	5,368	44	2,356	7,768	5,417
1942–43	325	101	8,153	8,579	556	Nil	3,132	3,688	4,891
1943–44	396	551	8,097	9,044	658	Nil	3,426	3,426	5,618
1944–45	152	790	N.A.	..	529	2	N.A.	..	..
1945–46	10	441	N.A.	..	893	40	N.A.	..	..
1946–47	238	869	N.A.	..	1,982	13	N.A.	..	..
1947–48	408	891	N.A.	..	3,465	19	N.A.	..	..

NOTE.—N.A. = Not available.

ANNEXURE 23.

Import of raw hides into Madras from other Provinces (Railborne) in tons.

	1935–36.	1936–37.	1937–38.	1938–39.	1939–40	1940–41.
Assam	2,820	28	28	36	11	16
Bengal (including Calcutta)	2,820	5,621	3,937	5,020	9,823	7,1 7
Bihar	1,313	2,424	343	605	510	416
Orissa	..	..	2,595	2,118	2,632	2,137
U.P. of Agra and Oudh	12	3,283	1,473	2 259	3,659	1,338
Punjab	..	542	37	67	365	222
Delhi	..	..	..	56	107	120
N.W.F. Province	..	..	..	..	..	..
Sind and Br. Baluchistan	..	..	..	..	..	..
C.P. and Berar	262	850	604	879	1,132	452
Bombay (including Bombay Port)	453	251	748	160	765	522
Rajputana	16	1	12	..	344	11
Central India	..	12	13	151	51	2
Hyderabad State	128	108	112	152	195	114
Mysore State	290	159	76	99	151	69

ANNEXURE 24.

Import of raw skins into Madras from other Provinces (Railborne) in tons.

	1935–36.	1936–37.	1937–38.	1938–39.	1939–40.	1940–41.
Assam	..	..	..	..	..	..
Bengal (including Calcutta port)	52	111	90	112	63	43
Bihar	15	104	6	16	..	..
Orissa	..	..	263	222	297	267
U.P. of Agra and Oudh	..	165	7	27	17	15
Punjab	85	..	..	14	17	18
Delhi	..	..	43	4	10	..
C.P. and Berar	945	1 042	937	556	348	247
Bombay (including Bombay port)	1,793	2,248	2,314	1,437	1 664	689
Rajputana	77	261	104	28	63	15
Central India	218	241	209	44	58	8
Hyderabad State	570	756	780	814	492	575
Mysore State	2,974	305	2,674	2,528	2,757	2,213

ANNEXURE 25.

Cost of hide tanning.

	Centre.	Raw hide.	Lime and oil.	Tanning material.	Labour.
		PER CENT.	PER CENT.	PER CENT.	PER CENT.
1	Eluru	81	5	9	5
2	Do.	83·4	4·1	10·4	2·1
3	Do.	81	5	11	3
4	Vizianagaram	83·8	3·4	7·4	5·4
5	Do.	70·6	3·7	17·8	7·8
6	Ranipet	79·8	3	9·5	7·7
7	Vizianagaram	80·6	2·7	8·2	8·6
8	Dindigul	77·9	2·8	14·6	4·7
9	Do.	81·4	3·2	10·8	4·6
	Average	80	3·5	11	5·5

Cost of skin tanning.

	Centre.	Raw skin.	Lime and oil.	Tanning material.	Labour.
		PER CENT.	PER CENT.	PER CENT.	PER CENT.
1	Vaniyambadi	77	3	12	8
2	Do.	69	5	16	10
3	Do.	88·4	1·3	6·8	3·5
4	Do.	87·9	2·1	5·5	4·5
5	Dindigul	82·4	2·6	8·1	6·9
6	Do.	86·1	1·4	9·6	2·9
	Average	81·7	2·6	9·7	6·0

ANNEXURE 26.

A note on avaram bark.

By K. Seshachalam Choudary.

The avaram bark is not very rich in tannin, the tannin, content ranging from 12 to 18 per cent. The following is an average analysis of the bark [1] :—

	PER CENT.		PER CENT.
Tannin	17·6	Moisture	9·1
Non tannin	10·8	Insolubles	62·5

The tannin content (calculated to 10 per cent moisture) of avaram bark from the different parts are given below[2] :—

District of origin.	Per cent tannin (calculated to 10 per cent moisture).	District of origin.	Per cent tannin (calculated to 10 per cent moisture).
Vizagapatnam	16·32	Salem (Central)	16·81
Guntur	15·58	Mathurai	15·74
Kurnool (West)	17·00	Coimbatore (North) ..	15·22
Cuddapah	16·62	Palghat	19·06

It has been shown that the amount of tannin extracted increases with the temperature of extraction, that 95—100° C seems to be the optimum temperature of extraction, and that at the ordinary temperature (35—40° C.) about 75 per cent of the total extractable tannin is extracted[2]. The pH of avaram liquor of official strength was found to be 4·7[2]. It was found that avaram liquor loses least tannin on keeping[2]. Avaram tanned leather is mellow, of a very light colour and when exposed to light darkens quickly. Spent avaram bark contains an appreciable amount of tannin[2].

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[1] South Indian Tanning Materials—A. Guthrie, Collegium 1915, pages 192–196.
[2] Studies on Avaram Bark I—K. Seshachalam Choudary and Yoganandam—J.I.S.L.T.C.—February 1928.

ANNEXURE 27.

Annual collection of avaram bark (from reserves and unreserves) in the districts of the Presidency.

District.		Output of avaram bark in tons.	District.	Output of avaram bark in tons.
Anantapur		4,000	Other districts—*cont.*	
Bellary		2,500	North Arcot	50
Nellore		1,250	South Arcot	50
Chittoor		2,000	Mathurai	40
Other districts—			Tanjore	15
Kurnool	403		Tiruchirappalli	10
Ramnad	250		Chingleput	10
Cuddapah	150			1,250
Salem	125			
Guntur	75		Total	11,000
Coimbatore	75			

ANNEXURE 28.

Consumption of avaram bark for skin tanning in the Madras Presidency.

	TONS.		TONS.
1936–37	24,924	1942–43	9,171
1937–38	23,007	1943–44	7,164
1938–39	18,696	1944–45	9,384
1939–40	19,770	1945–46	14,331
1940–41	8,799	1946–47	24,831
1941–42	11,754		

ANNEXURE 29.

Area of waste lands available in the different districts of the Presidency.

—	Average (regular fallow, pasture, and waste or seldom cultivated). ACS.	CENTS.	—	Average (regular fallow, pasture, and waste or seldom cultivated). ACS.	CENTS.
1 Nellore	293,207	7	13 Krishna	92,105	93
2 Anantapur	274,134	18	14 Coimbatore	90,112	45
3 South Kanara	227,232	29½	15 Nilgiris	79,294	92
4 Malabar	190,659	3	16 South Arcot	74,413	11
5 Tirunelveli	180,322	77	17 Chittoor	56,876	5
6 Cuddapah	166,395	10	18 West Godavari	48,853	14
7 Guntur	145,623	65	19 Chingleput	55,122	49
8 Tiruchirappalli	138,464	73	20 Mathurai	48,787	19
9 Kurnool	121,317	25	21 Tanjore	46,520	76
10 Bellary	114,672	83	22 East Godavari	16,715	81
11 North Arcot	113,395	83	23 Vizagapatnam	15,279	5
12 Salem	101,844	72	24 Ramnad	9,832	37

ANNEXURE 30.

[Reprinted from J.I.S.L.T.C., August 1947, pp. 284 to 285.]

Avaram bark.

By K. Seshachalam Chowdary and Y. Nayudamma.

Avaram bark (Tarwar, Tangedu) *Cassia auriculata* is a tanning material of the first importance in South India, and is used solely in the tanning of skins intended for export. This much-branched shrub is found in large quantities in Central and South India, as far north as Rajputana and also in some parts of Burma.

The branches are harvested with a light axe or chopper, and the very young shoots and leaves removed. Stripping is done by placing the sticks on a flat stone and beating with a piece of wood or stone until the bark is loosened, when the latter is then removed by hand. The separated bark is finally dried in the air for a day or two prior to packing.

As the cost of stripping has been found to be between 40 and 60 per cent of the cost of production at the assembling centres—to which the bark is sent from the growing areas, it was thought desirable to ascertain whether the unstripped twigs could be used in place of the stripped bark for tanning.

Analyses of unstripped twigs, and bark from the same lots of twigs are given in the following table :—

	Unstripped twigs.	Stripped bark.
Tannin	4·56	18·28
Non-tannins	6·08	9·34
Insolubles	80·30	61·23
Moisture	9·06	11·15
pH	5·50	5·09
Colour of 0·5% Tannin soln :—		
Red	5·0	4·9
Yellow	8·6	6·7
Tans : Non-Tans ratio ..	0·75	1·96
Tannin calcd. to 10% moisture	4·51	18·52

Skins were tanned with (*a*) unstripped twigs, (*b*) stripped bark, and (*c*) avaram bark obtained from the open market, using the ordinary South Indian tannage. All three leathers were very similar, and there was little difference in leather yield. The unstripped twigs gave 29 per cent leather on the pelt weight, while the stripped bark and commercial avaram bark each gave 30 per cent leather yield.

It is evident therefore that unstripped twigs can be used in place of stripped bark to give the same leather yield. As the weight of the stripped bark is only about 20 to 23 per cent of the twigs, it would not be economical to transport unstripped twigs over long distances. Nevertheless, the unstripped twigs can safely and advantageously be used in those places near the source of supply. This might help the development of the South Indian industry where tanning is carried out on a "cottage" basis in the villages.

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ANNEXURE 31.

Note on konnai bark.

By K. S. Choudary.

The bark contains about 10 to 12 per cent of tannin from an experiment to determine how much of the total solubles is leached within 20 days. About 80 per cent of the tannins and non-tannins are extracted during this period. Thus during the cold leaching of the bark the non-tannins are very readily extracted. At 80° to 90° C. the maximum amount of tannin is extracted. At ordinary temparature (30° C.) only 75 per cent of the tannin extracted. The maximum amount of non-tannin is extracted even at ordinary temperature from the point of view of the tannin content 80° to 90° C. seems to be the optimum temperature of extraction. Leaching at ordinary temperatures appears to be sufficient for the South Indian tanning.

ANNEXURE 32.

Note on myrobalans.

By K. Seshachalam Choudary.

This is one of the most important tanning materials of the Hydrolysable class. The average analysis of a sample of myrobs is given below :—

	PER CENT.
Tannins	25·1
Non-Tannins	10·5
Insolubles	53·0
Moisture	9·3

Next to wattle and Divi Divi it is the richest South Indian tanning material. It is not very astringent and penetrates the hide very slowly. When used alone it yields a soft mellow and rather spongy leather which does not possess good wearing properties. It is, therefore, usually blended with wattle or babul. Its acid forming character is very important, containing about 3 to 5 per cent of sugars. It is one of the chief bloom yielding tanning materials and is therefore used in the production of sole leather. Many sole leather tanners use myrobalans in quantity, not so much for its tanning properties as for the acids which it produces in the tan liquors by fermenting. About 90 per cent of the myrobalans imported into the United States is received as raw material and most of this is converted into extract before it reaches the tanner.

ANNEXURE 33.

Export of myrobalans from Madras Presidency.

Year.		Weight in tons.	Value in rupees (in lakhs).	Year.		Weight in tons.	Value in rupees (in lakhs).
1924–25	..	2,500	..	1935–36	..	2,629·8	1·4
1925–26	..	4,000	..	1936–37	..	2 588 2	1·3
1926–27	..	7,000	..	1937–38	..	2,317·0	1·0
192 –28	..	4,200	..	1938–39	..	2,532 6	1·4
1928–29	..	3 500	..	1939–40	..	1,105·2	0·93
1929–30	..	2,000	..	1940–41	..	910 6	0·58
1930–31	..	3,512·3	2·5	1941–42	..	2,553·1	1·8
1931–32	..	3,024·3	1 8	1942–43	..	935·3	1·0
1932–33	..	2,413 9	2·0	1943–44	..	3,982·4	5·4
19 3–34	..	3,981·9	2·7	1944–45	..	7,140·6	8·4
1934–35	..	6,622·6	4·2	1945–46	..	2,989·0	3·3

ANNEXURE 34.

Import of wattle bark into Madras Presidency (sea borne).

Year.		Weight in tons.	Value in rupees (lakhs).	Year.		Weight in tons.	Value in rupees (lakhs).
1917–18	..	161·5	..	1932–33	..	9,667·0	11·7
1918–19	..	1,036·6	..	1933–34	..	13,320·0	14 0
1919–20	..	2,713·4	..	1934–35	..	13,932·0	12·8
1920–21	..	44·5	..	1935–36	..	13,065·0	13·2
1921–22	..	...	..	1936–37	..	21,444 0	19·2
1922 23	..	198·75	..	1937–38	..	17,155·0	20·8
1923–24	..	1,603·5	..	1938–39	..	16,163·0	22·1
1924–25	..	1,069·1	..	1939–40	..	31,575·0	40·0
1925–26	..	4,191·0	..	1940–41	..	26,162·0	35·2
1926–27	..	5,925·0	..	1941–42	..	21,290 0	29·9
1927–28	..	8,882·0	..	1942–43	..	18 357·0	26·4
1928–29	..	14,217·0	..	1943–44	..	21 371·0	34·1
1929–30	..	12,955·0	14·0	1944–45	..	16,137·0	27·6
1930–31	..	10,177·0	13·0	1945–46	..	20,617·0	35·6
1931–32	..	10,797·0	13·0	1946–47	..	18,347·0	39·8

ANNEXURE 35.

Note on South Indian wattle bark.

By K. S. Choudary.

The South Indian Wattle Bark compares favourably in tannin content with the South African Wattle Bark. The results of analysis of the South Indian, South African and Australian Wattles are given in table :—

TABLE.

Place of origin.	*Acacia decurrens.* Per cent of tannin.	Percent of non-tannin.
South India—		
Thayar Tea Estate	31·12	12·60
Naduvattam Prospect Estate, Nilgiris	35·60	11·71
Bondy Brothers, Ootacamund	38·2	10·21
Tea Estates, Nilgiris	31·09	6·09
Australia—		
St. Mary, New South Wales	42·10	8·03
Bateman's Bay	38·93	9·20
Do.	36·75	7·94
South Africa—		
Warbury—Natal	35·87	7·44
Natal	35·72	10 45
Do.	36·96	10·35

Analyses (carried out at the institute in April 1946) of a sample of Nilgiris crushed Wattle Bark and of imported Wattle Bark used in a tannery at Ranipet, received from the South Indian Tanners and Dealers Association, Ranipet, are given in table :—

TABLE.

Details of barks.	Calculated on a moisture content of 10 oz. Tannins.	Non-tannins.	Insolubles.
Nilgiris crushed	27·80	9·50	52·70
Imported	24·39	11·69	53·92

The analyses of a few samples of Wattle Bark (*Acacia decurrens* and *Acacia dealbata*)—from the forest plantations in the Nilgiris, sent by the Provincial Siviculturist and carried out at the institute in September 1946 are given in table :—

TABLE.

Plantation.	Year.	Age.	Analysis calculated to 100 per cent moisture.		
			Tannins.	Non-tannins.	Insolubles,
Jaskosmilla	1939	7	26·64	12·03	51·33
Do.	1941	5	25·80	11·99	52·21
Do.	1943	3	25·11	12·22	52·67
Brooklands	1938	8	24·18	10·74	55·08
Morlimund	1942	4	26 90	11·83	51·27
		Acacia dealbata.			
Brooklands	1935	11	10·76	9·49	69·75
Do.	1936	10	17·80	10·70	61·50
Do.	1937	9	16·78	9·92	63·30

ANNEXURE 36.

Wattle plantations—Chemical research.

Note by K. S. Choudary.

Chemical research shall include—

(*a*) Follow the tannin content and other properties of the bark and therefore the economics of the tree with age, soil and other co-ordinating factors.

(*b*) The best and the most economic form of drying without deteriorating the quality of the bark.

(*c*) Chopping or crushing of the bark to be placed on the market.

Pressing and baling—

(*d*) Manufacture of extract from the bark (either liquid or solid, preferably the latter). Along with this I would desire research to be conducted on the possibility of manufacturing not only pure wattle extract but an extract from it blended with other available tanning materials.

(*e*) Utilization of wattle wood as pulp or charcoal or as products obtainable by the destructive distillation of this wood.

(*f*) Utilization of wattle gum.

Items (*a*) to (*d*) should be done by a Leather Chemist.

The Chemist to work on (*e*) and (*f*) might be appointed one year later and until that time the wood might be converted into charcoal and sold.

The Leather Chemist for works (*a*) to (*d*) should be appointed immediately.

Regarding the location of this chemical work I suggest that in the early stages it is better to be located at the Institute of Leather Technology for the following reasons :—

(*a*) Apart from the mere analysis of the barks tanning trials should best be done with each material in the best interests of marketing.

(*b*) The study of the question of extract manufacture needs a good bit of work on leaching of the materials which involves construction of leaching pits, etc. Tanning trials has also to be made.

After some time when it expands it may be transferred to the Forest College, Coimbatore, or located at the Berijam Valley in Kodaikanal.

The details of the cost of the scheme—

RECURRING.

	RS.		RS.
Pay of Chemist	250	Materials and Che icals ..	2,500
Tanning Foreman	90	Apparatus	2,500
Senior Laboratory Attender ..	60	Contingencies	1,000
Junior Laboratory Attender	35		

CAPITAL EQUIPMENT.

	RS.		RS.
Apparatus, etc.	5,000	Pilot Plant for tannin extract manufacture	40,000
Laboratory (with gas and water fittings)	7,500		

AFTER ONE YEAR.

	RS.		RS.
Pay	250	Materials and Chemicals, Apparatus, Contingencies. ..	5,000
Senior Laboratory Attender ..	60		
Junior Laboratary Attender ..	35	Equipme t	50,000

This work may be taken up immediately by the Central Leather Research Institute to be started at Madras.

ANNEXURE 37.

Note on Hopea parviflora *bark.*

By K. Seshachalam Choudary.

The analysis of a sample of well-dried bark from Puttur range is given below [1]:—

	PER CENT.
Tannins	25·8
Non-tannins	6·0
Insolub'es	59·6
Moisture	8·6

Next to wattle, myrobalans and *Divi Divi* it is the richest of the South Indian tanning materials [2]. The sugar content is very low, being less than 1 per cent. The loss in tannin in *Hopea* Liquors after standing for six days is 1 per cent as against 15·3 per cent in the case of *Divi Divi* l quor [3]. Leather tanned with *Hopea* alone was of a colour similar to the Cawnpore babul and myrob tanned leather. But either leached with myrobalans or with a mixed tannage of myrobalans and *Hopea*, the colour was somewhere between the Cawnpore and the Madras tanned leather. It is, however, slightly browner in shade than the normal Madras tanned leather. The leather was found to dye evenly [3]. The high proportion of tans to non-tans of the bark re ders the material suitable for the preparation of extracts. It is possible to prepare a solid extract containing as much as 66 per cent of tannins.

[1] Bark of *Hopea parviflora* as a tanning material—K. S. Chowdary, E. Yoganandam and N. Arokianathan—Indian Forester—September 1928.

[2] South Indian tanning materials—A comparative study—Chowdary and Yoganandam—J.I.S.L.T.C., 1926—Pages 222-2.8.

[3] Bark of *Hopea parviflora* as a tanning material—Staff of the Leather Trades Institute—Bulletin No. 27, Department of Industries and Commerce, Madras—1929.

ANNEXURE 38.

A note on Terminalia arjuna *as a tanning material.*

By K. Seshachalam Choudary.

Terminalia arjuna [1] (kahua jella, maddi) is a large deciduous tree found on the banks of rivers and streams throughout Central and South India. The bark contains 15·84 per cent tannins and 8·16 per cent of non-tannis. Both Catechol and Pyrogallol tannins are present. The bark is easily leached. The loss of tannin and non-tannins by fermentation of the liquors is very low when compared with materials like myrobalans. Hides were tanned with the bark alone and also in a blend with myrobalans. The leather was found to be very firm and the grain free from crackiness, but the colour was not comparable to that of the usual South Indian tanned leather.

[1] *Terminalia arjuna* as a tanning material: K. Seshachalam Choudary—J.I.S.L.T.C., 1941, 25, Pages 56-58.

ANNEXURE 39.

Import of belting for machinery (1936-37 *to* 1945-46) *into Madras Presidency.*

Place (from).	Port.	Cotton value in rupees.	Hair value in rupees.	Leather value in rupees.
(1)	(2)	(3)	(4)	(5)
1936-37—				
United Kingdom ..	Chief Port ..	97,666	9,174	56,263
Do. ..	Vizagapatnam.	924	8,341	3,485
Do. ..	Tuticorin ..	8,367	677	36,680
Do. ..	Cochin ..	3,928	4,283	7,366
Do. ..	Calicut ..	260	828	460
Ceylon	Chief Port ..	131	..	..
Straits Settlements.	Do. ..	347	..	..
Canada	Do. ..	132	..	..
Germany	Do. ..	3,426	28,119	750
Japan	Do. ..	8,757	..	2,684
United States of America (A.C.).	Do. ..	8,645	..	11,670
Germany	Kakinada ..	..	2,379	..
Do.	Tuticorin ..	..	406	..
Do.	Cochin ..	..	1,702	..
Do.	Calicut ..	..	3,186	..
United States of America (A.C.).	Tuticorin ..	..	..	282
	Total ..	1,31,583	59,095	1,19,630
	Percentage ..	42	19	39

Place (from).	Port.	Cotton value in rupees.	Hair value in rupees.	Leather value in rupees.
(1)	(2)	(3)	(4)	(5)
1937–38—				
United Kingdom ..	Chief Port ..	1,01,963	15,901	38,022
Do. ..	Tuticorin ..	15,237	3,022	79,418
Do. ..	Cochin ..	7,680	11,485	3,257
Do. ..	Calicut ..	621	274	1,159
Germany	Chief Port ..	6,164	50,417	252
Do.	Tuticorin ..	469	4,019	..
Do.	Cochin ..	2 901	961	..
Japan	Chief Port ..	26 960	..	14,775
Do.	Cochin ..	473		
United States of America (A.C.).	Chief P. rt	2,336	..	7,068
Do.	Cochin ..	619	..	..
Do.	Calicut ..	3,407	..	..
Canada	Chief Port ..	3,262	..	..
United Kingdom ..	Vizagapatnam.	291	181	1,037
Sweden	Chief Port ..	..	135	..
Canada	Kakinada ..	..	..	4
Denmark	Chief Port ..	..	..	422
	Total ..	1,72,397	91,021	1,45,394
	Percentage ..	42	22	36
1938–39—				
United Kingdom ..	Chief Port ..	62,805	12,165	36,852
Do. ..	Vizagapatnam.	120	..	182
Do. ..	Tuticorin ..	31,491	5,055	72,715
Do. ..	Cochin ..	3,070	9,031	2,180
Canada	Chief Port ..	1,293	..	..
Germany	Do. ..	10,626	45,850	1,301
Do.	Cochin ..	2,007	..	..
Japan	Chief Port ..	4 810	..	..
Do.	Cochin ..	1,168	..	..
United States of America (A C.).	Chief Port ..	6,741	..	10,394
Do.	Tuticorin ..	4 480	..	..
Do.	Cochin ..	1 627	..	3,564
Do.	Calicut ..	2 366	..	..
Japan	Do. ..	357	..	..
Ceylon	Danushkodi ..	..	98	..
Sweden	Chief Port ..	..	78	..
Germany	Kakinada ..	..	5 933	..
Do.	Tuticorin ..	..	728	..
United Kingdom ..	Calicut ..	..	113	407
Ceylon	Cochin ..	..	..	75
Belgium	Chief Port ..	..	..	14,012
Denmark	Do. ..	..	..	1,007
	Total ..	1,32,241	79,051	1,42,689
	Percentage ..	30	18	32

Other materials—Rs. 91,305—20%

Total of belting—Rs. 4,45,286.

Place (from). (1)	Port. (2)	Cotton value in rupees. (3)	Hair value in rupees. (4)	Leather value in rupees. (5)
1939–40 —				
United Kingdom ..	Chief Port ..	64,240	6,535	41,004
Do. ..	Vizagapatnam.	310	..	..
Do. ..	Tuticorin ..	28,430	..	88,839
Do. ..	Cochin ..	321	9,477	1,487
Do. ..	Calicut ..	3,116	3,534	689
Germany	Chief Port ..	5,230	25,696	1,402
Do.	Cochin ..	791	..	..
Japan	Chief Port ..	10,190	..	..
Do.	Cochin ..	1,227	..	..
United States of America.	Chief Port ..	88	4,640	4,640
Do.	Cochin ..	908	..	2,331
Do.	Calicut ..	5,387	..	..
Do.	Mangalore ..	18	..	..
Canada	Chief Port ..	8,840	..	..
Netherlands ..	Do. ..	..	552	552
Belgium	Do. ..	..	..	3,109
Switzerland ..	Cochin ..	..	92	92
United Kingdom ..	Kakinada ..	..	1,449	..
	Total ..	1,29,332	46,691	1,44,145

Other materials—Rs. 72,843—18 per cent.

Total of belting—Rs. 3,93,011.

	Percentage ..	33	12	37

Place (from). (1)	Port. (2)	Cotton value in rupees. (3)	Hair value in rupees. (4)	Leather value in rupees. (5)
1940–41—				
United Kingdom ..	Chief Port ..	77,185	89,194	62,001
Do. ...	Vizagapatnam.	1,054	..	
Do. ..	Tuticorin ..	9,465	..	35,948
Do. ..	Cochin ..	2,805	21,703	8,962
Do. ..	Calicut ..	3,409	..	..
Burma	Chief Port ..	126	..	..
Canada	Do. ..	10,710	..	..
Japan	Do. ..	4,393	313	..
United States of America (A.C.)	Do. ..	11,005	..	..
Do.	Calicut ..	4,900	..	..
Do.	Cochin ..	3,226	..	..
Ceylon	Danushkodi ..	..	..	136
United States of America (A.C.)	Chief Port ..	..	..	8,798
United States of America (P.C.)	Do. ..	..	..	25
Sweden	Do. ..	..	452	..
	Total ..	1,28,293	1,11,662	1,15,870

Other materials—Rs. 1,26,680—26 per cent.

Total of belting—

	Percentage ..	27	23	24

Place (from). (1)	Port. (2)	Cotton value in rupees. (3)	Hair value in rupees. (4)	Leather value in rupees (5)
1941-42—				
United Kingdom ..	Chief Port ..	45,110	29,328	61,225
Ceylon	Danushkodi ..	118	..	..
United Kingdom ..	Tuticorin ..	4,910	..	17,697
Do. ..	Cochin ..	1 796	4,745	..
Canada (A.C.) ..	Chief Port ..	9 248	..	..
Japan	Do. ..	3,894	..	..
United States of America (A.C.)	Do. ..	17,343	..	5,716
Do.	Cochin ..	665	..	..
Do.	Calicut ..	3,829	..	..
United Kingdom ..	Do. ..	..	1 075	737
	Total ..	86,913	35,148	85,375

Other materials—Rs. 1,14,347—36 per cent.

Total of belting—Rs. 3,21,783.

	Percentage ..	27	11	26

1942-43—				
United Kingdom ..	Chief Port ..	60,862	91,463	1,03,359
Do. ..	Cochin ..	42,277	7,310	44 645
Do. ..	Tuticorin ..	1,467	..	24,055
	Total ..	1,04,606	98,773	1,72,059

Other materials—Rs. 98,584—21 per cent.

Total of belting—Rs. 4,74,022.

	Percentage ..	22	21	36

1943-44—				
United Kingdom ..	Chief Port ..	33,549	62,804	1,09,458
Do. ..	Tuticorin ..	13 540	..	1,10,425
Do. ..	Cochin ..	2,772	6,596	1,007
	Total ..	49,861	69 400	2,20,890

Other materials—Rs. 29,587—8 per cent.

Total of belting—Rs. 3,69,738.

	Percentage ..	13	19	60

1944-45—				
United Kingdom ..	Chief Port ..	2,80,948	1,60,982	1,47 329
Do. ..	Tuticorin ..	7,829	..	77,746
Do. ..	Cochin ..	8,549	10,941	2,817
United States of America (A.C.).	Do. ..	28,209	..	..
Do.	Chief Port ..	..	..	10,650
	Total ..	3,25,535	1,71 923	2 38,542

Other materials—Rs. 14,778—2 per cent.

Total of belting—Rs. 7,50,778.

	Percentage ..	43	23	32

Place (from). (1)	Port. (2)	Cotton value in rupees. (3)	Hair value in rupees. (4)	Leather value in rupees. (5)
1945-46—				
United Kingdom ..	Chief Port ..	1,26,442	2,21,629	61,347
Do. ..	Cochin ..	14,684	8,902	77,940
Do. ..	Tuticorin	19,456	—	..
Canada	Chief Port ..	1,625	—	..
United States of America (A.C.).	Cochin ..	32,660	..	..
United States of America.	Chief Port ..	..	..	40,946
Do.	Cochin ..	..	..	23,641
	Total ..	1,94,867	2,30,531	2,03,874

Other materials—Rs. 57,578—8 per cent.
Total of belting—Rs. 6,86,850.

	Percentage ..	28	34	30

ANNEXURE 40.

Import of roller skins into Madras Presidency.

Year.	Weight in cwt.	Value in rupees.	Year.	Weight in cwt.	Value in rupees.
1936–37 ..	11 ..	7,128	1942–43 ..	54 ..	59,152
1937–38 ..	111 ..	71,599	1943–44 ..	32 ..	35,590
1938–39 ..	38 ..	34,241	1944–45 ..	33 ..	41,721
1939–40 ..	74 ..	60,052	1945–46 ..	29 ..	37,102
1940–41 ..	67 ..	57,919	1946–47 ..	59 ..	71,433
1941–42 ..	40 ..	44,258	1947–48 ..	220 ..	1,23,205

ANNEXURE 41.

Courses in the Institute of Leather Technology.

The Leather Trade Institute has been named as the Institute of Leather Technology from the 1st of May 1946, when new courses have been introduced and the staff had been increased.

The following courses had been started from July 1946:—

(a) *Artisans' course.*—This is a two years' course in which the students are given training in the tanning of leather and in the making of leather goods starting from wrist-watch strap to big suit-cases. The kinds of tanning taught is the present-day South Indian tanning along with simple dying of leather which could be done on a cottage basis without drums. Only students of Harijans community (Cobbler) from mufassal districts are admitted into this course.

They are paid a monthly stipend of Rs. 25. These students are given a junior certificate after finishing a two years' course.

(*b*) *Diploma course in Leather Technology.*—This course extends over three years. The minimum qualification for admission is eligibility in the S.S.L.C. Examination with Chemistry as optionals. Special concession is given to Harijan students and to those students of any other community who are directly or indirectly connected with the South Indian leather industry. In that study up to S.S.L.C. class is considered sufficient. A fee of Rs 24 is levied for the whole session.

The subjects taught during these three years comprise of Chemistry (Inorganic, Organic and Physical), Engineering (Mechanical and Electrical) and Book-keeping and Accountancy and Chemistry and Processes of Leather Manufacture.

Arrangements have been made for giving adequate practical training in the tannery in the manufacture of the different classes of leathers and in the laboratory in the analyses of several materials used in and products of leather manufacture, besides methods of controlling the processes during different stages of tanning. During the third year, each student has to take one of the following special subject:—

Leather Goods Manufacture.
Glue Manufacture.
Tanning Extract Manufacture.
Curing and Preservation of Hides and Skins.

Unfortunately at the present time due to lack of space and facilities for equipment the students are only taking leather goods manufacture as a special subject. It is, however, hoped that when the extensions are completed arrangements will be made for including all the other special subjects mentioned supra.

There are class examinations held quarterly and annually. The Public Examination is held at the end of the third year.

All the students have after they pass the final examination to undergo apprenticeship for one year in a tannery recognized by the Department of Industries before obtaining a diploma. They will be called Licentiates in Leather Technology (L.L.T.).

(*c*) *Certificate course in Leather Goods Manufacture.*—There is a three years' course in leather goods manufacture. The minimum qualification for admission is a pass in VII standard. A fee of Rs. 12 is levied for the whole session. The subjects taught during the course are simple method of tanning, simple method of dyeing of all classes of leathers, the evaluation and selection of all classes of leather required in the manufacture of leather goods—both upper and heavy leathers, and the theory and practice of the manufacture of all classes of leather goods.

It is aimed to train these students in the manufacture of these leather goods not merely by hand but also with hand-worked and power-driven machinery. Attempts are being made to assemble a full set of these machinery. It may be some time before these machines are arrived and assembled. It is hoped that by this time the building of leather goods manufacture section of the institute would be complete.

Tannery Operatives course.—Tannery Operatives course of one year (ten months) is meant to be more specialized and intensive. A fee of Rs. 6 is levied for the whole session. It is proposed that a tannery operative should be trained in any one particular branch, e.g., Beam House Work, Vegetable Tannery Yard, Chrome Yard, Dyeing Yard and Finishing Yard. This course is intended for those who possess practical experience of the work he proposes to study. In this course the fundamentals of the particular processes and the methods of controlling the processes will be taught.

It has not been possible to start the new course due to the want of space at the institute at present. Attempts will be made to start this course as soon as more space is available at the institute.

Part-time course.—This is a course of six months duration in a special branch of the industry. Admission will be restricted to persons engaged in the industry who desire to specialize in a branch of the industry and to Chemistry Graduates who desire to be trained in the Analytical Chemistry of Leather Manufacture by working in the laboratory. A fee of Rs. 12 is levied per session of six months.

ANNEXURE 42.

Clause of leather.	Quantity.
	SQ. FT.
Box, willow calf and sides	634,375
Sambhur finished cow sides	639,375
Glazed kid (full crome and semi-chrome)	3,630,000
Chrome linings	225,500
Chrome suedes	877,800
Nu buck	51,500
Upholstery hides	4,000
Morocco goat	346,250
	NOS.
Skivers	15,000
Splits coloured	6,500
Chamois	300,000
	LB.
Sole leathers	1,900,000
Harness	125,000
Belting	250,000
	SQ. FT.
Case hides	575,000

ANNEXURE 43.

Import of boots and shoes (from 1936-37 *to* 1945-46).

Place.	Port.	All leather.		Rubber with canvas top.		Soled with leather upper.		All rubber.		Other materials.	
		Number of pairs.	Value.	Number of pairs.	Value.	Number of pairs.	Value.	Number of pairs.	Value.	Number of pairs.	Value.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
			RS.		RS.		RS.		RS.		RS.
1936-37—											
United Kingdom	Chief Port	4,927	17,892	790	1,486	1,525	1,029	83	141	504	815
Do.	Cochin	2	10	..	..	..	..	..	..	..	..
Ceylon	Chief Port	756	1,052	..	..	..	..	..	..	..	..
Czechoslovakia	Do.	860	2,683	..	..	..	..	..	..	..	..
Germany	Do.	3	20	..	..	..	..	..	..	..	..
Japan	Do.	276	333	4,854	4,023	1,053	867	400	140	3,793	2,381
United States of America. (A.C.).	Do.	3	20	..	..	..	..	..	..	..	..
China	Do.	310	725	30	22	..	..	..	..	52	177
United States of America.	Porto Novo.	22	45	..	..	..	..	..	..	..	..
Do.	Tuticorin	10	40	..	..	..	..	..	..	..	..
Federated Malaya States.	Do.	..	..	..	..	..	..	3	4	1	2
Strait Settlement	Nagapatinam.	..	..	..	..	..	..	..	..	619	79
Federated Malaya States.	Do.	..	..	..	..	..	..	..	..	360	43
	Total	7,314	23,361	5,764	5,531	2,518	1,896	486	285	5,339	3,508

Total of boots and shoes—21,421—Pairs Rs. 34,581.

	All leather	Rubber with canvas top	Soled with leather upper	All rubber	Other materials
Percentage ..	34	27	12	3	24

1937-38—

United Kingdom ..	Chief Port ..	2,252	8.858	555	1,003	134	254	248	723	1.088	2.555
Ceylon ..	Danushkodi	29	40	..	..	..	..	..	..	..	..
Do. ..	Cochin ..	1	3	..	..	..	..	..	..	..	..
Straits ..	Chief Port ..	2	1	..	..	..	..	..	..	..	..
Hongkong ..	Do. ..	6	12	..	..	..	..	..	..	..	..
Germany ..	Do. ..	181	484	..	..	..	..	..	..	342	680
Sweden ..	Do. ..	11	57	..	..	..	..	..	..	..	..
Union of South Africa.	Do. ..	2	15	..	..	..	..	..	..	..	..
France ..	Do. ..	1	5	..	..	..	..	..	..	..	..
Czechoslovakia ..	Do. ..	2,607	9,190	..	..	..	..	..	..	2,290	415
Burma ..	Do. ..	1,481	1.376	..	..	..	..	..	..	4	1
United States of America (AC).	Do. ..	1	3	..	..	..	..	..	..	..	..
China ..	Do. ..	36	33	..	..	..	..	..	..	..	..
Japan ..	Do. ..	32	44	5.268	4.613	284	575	..	..	786	727
United States of America	Do. ..	45	433	..	..	..	..	..	..	..	..
Burma ..	Kakinada ..	350	220	..	..	..	..	..	..	1,000	200
Indo-China ..	Nagapattinam	4	4	..	..	..	..	..	..	..	..
F.M.S. ..	Do. ..	9	2	..	..	..	..	..	..	308	40
Japan ..	Tuticorin ..	16	10	..	..	..	..	..	..	..	..
United States of America	Do. ..	1	7	..	..	..	..	..	..	..	..
United Kingdom ..	Kakinada ..	..	..	..	..	..	..	..	..	15	39
Straits ..	Nagapattinam	..	..	..	..	..	..	..	..	1	6
United Kingdom ..	Danushkodi	..	..	..	..	..	..	..	..	72	60
Sweden ..	Chief Port ..	..	..	..	..	..	..	..	..	4	7
Denmark ..	Cuddalore ..	..	..	..	..	..	..	..	..	8	20
Burma ..	Nagapattinam	..	..	..	..	..	..	..	..	1,440	140
Indo-China ..	Do.	..	..	..	..	..	..	..	..	2	3
	Total ..	7,082	20,832	5.823	5.616	415	829	248	723	7.360	4.893

Total of boots and shoes—20,931 Pairs, Rs. 32,893.

Percentage ..	33	28	2	1	36

Place.	Port.	All leather.		Rubber with canvas top.		Soled with leather upper.		All rubber.		Other materials.	
		Number of pairs.	Value.	Number of pairs.	Value.	Number of pairs.	Value.	Number of pairs.	Value.	Number of pairs.	Value.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
			RS.		RS.		RS.		RS.		RS.
1938–39—											
United Kingdom ..	Chief Port	2.652	11,314	515	999	5	8	83	317	211	792
Do. ..	Cochin	6	44	..	..	..	..	..	..	11	21
Burma	Chief Port	354	504	..	..	..	..	910	642	500	51
Do.	Kakinada	905	718	..	..	..	..	..	..	1.650	200
Do.	Calicut	5	7	..	..	..	..	..	..	..	..
Straits	Nagapattinam	22	61	..	..	..	..	..	..	4	6
Ceylon	Chief Port	2	5	..	..	..	..	..	..	..	..
Do.	Dhanushkodi	129	318	..	..	..	..	..	..	76	16
Germany	Chief Port	145	409	90	183	60	137	..	..	..	..
Czechoslovakia ..	Do.	1.580	5.582	..	.	..	..	..	..	..	..
O.N.S.A.	Do.	3	5	..	..	..	..	..	..	..	..
China	Do.	50	24	..	..	..	..	..	..	64	126
United States of America.	Do.	24	177	..	..	..	..	..	..	..	..
Japan	Do.	..	..	1,094	847	..	..	156	312	..	.
Burma	Nagapattinam	..	..	..	..	..	..	..	..	400	45
United States of America.	Cochin	..	..	..	..	..	..	..	..	4	10
Do.	Tuticorin	..	..	..	..	..	..	..	..	2	4
	Total ..	5,889	19,258	1,699	2,029	65	145	1.149	1.271	2,922	1.271

Total of boots and shoes—8,498 Rs. 22,434.

Percentage ..	40		14	1/3	9	27½

1939-40—											
United Kingdom	Chief Port	1,044	5,511	395	790	..	..	20	178	275	588
Burma	Do.	172	266	..	..	..	..	420	480	..	..
Ceylon	Do.	2	10	..	..	..	..	..	..	..	..
Germany	Do.	1	10	..	..	..	..	..	..	..	..
F.M.S.	Do.	5	10	..	..	..	..	..	..	..	..
China	Do;	30	38	..	..	..	..	..	..	80	101
United States of America	Tuticorin	2	36	..	..	..	..	..	..	..	..
Japan	Chief Port	..	..	300	312	..	..	95	176	..	..
Ceylon	Dhanushkodi	..	..	..	..	4	20	..	..	..	..
United Kingdom	Cochin	..	..	..	..	..	..	7	9	..	..
Straits	Chief Port	..	..	..	..	..	..	..	..	120	21
France	Do.	..	..	..	..	..	..	..	..	59	172
United States of America	Do.	..	..	..	..	..	..	..	..	6	67
	Total	1,293	5,923	695	1,102	4	20	542	843	540	949
Total of boots and shoes—3,074			Rs. 8 837.								
	Percentage	42		23		Nil.		18		17	
1940-41—											
United Kingdom	Chief Port	334	1,714	83	240	..	..	70	286	39	39
Burma	Do.	258	234	..	..	95	78	..	..	506	98
United Kingdom	Tuticorin	1	4	..	..	..	..	..	..	..	..
S. S.	Nagapattinam	6	22	..	..	..	..	..	..	1,229	185
Ceylon	Dhanushkodi	38	42	..	..	..	..	..	..	21	30
China	Chief Port	3	5	..	..	..	..	..	..	..	..
United States of America	Do.	81	56	..	..	..	..	..	..	..	..
Japan	Do.	..	..	..	..	..	..	2	8	..	..
S. S.	Porto Novo	..	..	..	..	..	..	..	..	150	31
United Kingdom	Cochin	..	..	..	..	..	..	..	..	6	10
	Total	721	2,077	83	240	95	78	72	294	1,951	393
Total of boots and shoes—2,922.											
	Percentage										

Place.	Port.	All leather.		Rubber with canvas tops.		Soled with leather upper.		All rubber.		Other materials.	
		Number of pairs.	Value.	Number of pairs.	Value.	Number of pairs.	Value.	Number of pairs.	Value.	Number of pairs.	Value.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
			RS.		RS.		RS.		RS.		RS.
1941–42—											
United Kingdom	**Chief Port**	457	2,667	165	585						
Ceylon	**Dhanushkodi**	2,830	2,951	3	3	..	..	..	..	282	555
Burma	**Chief Port**	7	32	..	..	..	..	..	..	208	934
Ceylon	**Tuticorin**	36	28	13	13	..	..	..	..	1,050	110
Australia	**Chief Port**	3	2	..	..	..	..	..	..	14	4
S.S.	Do.	6	3	..	..	..	..	..	..	..	..
United States of America.	Do.	1	9	..	..	..	..	..	..	..	..
Hongkong	Do.	..	..	..	..	..	..	..	..	..	..
China	Do.	..	..	6	15	..	..	..	..	..	..
	Total	3,340	5,892	187	616	..	..	..	..	12	27
Total of boots and shoes—5,093	Rs. 8,138					..	..	..	..	1,566	1,630
Percentage		65		4						31	
1942–43—											
United Kingdom	Chief Port	2,033	19,790	360	271						
Ceylon	Dhanushkodi	1,064	2,681	..	..	..	..	..	..	..	–
United Kingdom	Cochin	587	7,574	..	..	..	..	..	..	..	..
Ceylon	Tuticorin	4	3	..	..	–	..	..	..	45	571
	Total	3,688	30,048	360	271	..	..	..	..	..	..
Total of boots and shoes—4,093	Rs. 30,890.					..	..	..	..	45	571
Percentage		90		9						1	

1943–44—											
United Kingdom	Chief Port	1,274	12,261	..	..	..	..	..	..	..	..
Do.	Cochin	1,643	29,186	..	..	..	..	..	..	..	..
Ceylon	Dhanushkodi	5	72	..	..	..	..	..	..	..	..
	Total	2,922	41,519	..	..	..	..	..	..	..	..
Total of boots and shoes— Percentage			100								
1944–45—											
United Kingdom	Chief Port	90	1,110	..	..	..	..	..	..	..	..
Do.	Cochin	420	6,347	..	..	..	..	..	..	..	..
	Total	510	7,457	..	..	..	..	..	..	..	..
Total of boots and shoes— Percentage			100								
1945–46—											
United Kingdom	Cochin	1	15	..	..	..	..	..	..	..	..
Ceylon	Dhanushkodi	3	3	..	..	..	..	..	..	..	..
	Total	4	18	..	..	..	..	..	..	..	..
Total of boots and shoes— Percentage			100								

Import of boots and shoes into Madras (coastwise).

Year.			Number of pairs.	Value in rupees.
1932–33	..	..	15,689	18,602
1933–34	..	..	27,080	21 255
1934–35	..	..	75 160	65,565
1935–36	..	..	185 752	153,,077
1936–37	..	..	266,225	1,23 539
1937–38	..	..	190 564	93 606
1938–39	..	..	258,879	1,53 467
1939–40	..	..	54,904	22,598

ANNEXURE 44.

Export of boots and shoes—Other sorts from Madras Presidency.

From port.	To place.	Number of pairs.	Value in rupees.
1936–37—			
Chief Port	United Kingdom ..	120	200
Do.	Ceyprus	21	90
Do.	Aden and Dependents..	35,904	38,015
Calicut	Do. ..	26	33
Chief Port	Ceylon	39	293
Cochin	Do.	..	..
Chief Port	Straits	1,941	2,085
Do.	F.M.S.	156	135
Do.	Union of South Africa.	1,852	1,983
Do.	Zanzibar	2,814	2,487
Do.	Kenya Colony	952	774
Negapatam	F.M.S.	146	132
Do.	Do.	222	137
Do.	Straits	1,435	1,745
Dhanushkodi	Ceylon	10,891	23,412
Tuticorin	Do.	236	220
Chief Port	Commonwealth of Australia.	600	1,000
Do.	Egypt	428	250
	Total ..	57,788	72,996
1937–38—			
Chief Port	United Kingdom ..	135	250
Do.	Aden	58,981	55,177
Calicut	Do.	550	510
Do.	Bahrein Islands ..	280	250
Dhanushkodi	Ceylon	12,773	27,498
Tuticorin	Do.	687	785
Calicut	Do.	40	20
Chief Port	Straits	1,896	2,152
Negapatam	Do.	3,200	4,051
Do.	Malaya State	594	553
Chief Port	Union of South Africa.	2,020	1,657
Do.	Zanzibar	3,840	3,611
Do.	Kenya Colony	732	800
Do.	Tanganiyaka	120	140
Do.	Nigeria	312	200
Do.	Mauritius	200	150
Tuticorin	Do.	204	233
Chief Port	Burma	3,900	3,920
Calicut	Muskat Territory ..	60	50
Do.	Arabia O.N.S. ..	100	100
Chief Port	Portuguese East Africa.	18	30
Do.	United States of America (A.C.)	3,546	325
	Total ..	94,188	1,05,380

From port.	To place.	Number of pairs.	Value in rupees.
1938–39—			
Chief Port	United Kingdom	72	102
Do.	Aden	10,092	16,639
Manga	Do.	20	10
Chief Port	Nigeria	404	425
Calicut	Bahrein Islands	470	35
Chief Port	Cey'on	595	1,385
Dhanushkodi	Do.	10,527	23,735
Tuticorin	Do.	1,637	996
Adirangapatam	Do.	40	7
Chief Port	Burma	3,172	3,390
Vizagapatam	Do.	200	225
Chief Port	Straits	378	475
Vizagapatam	Do.	1,896	2,477
Chief Port	F.M.S.	48	48
Vizagapatam	Do.	776	863
Chief Port	Union of South Africa	168	280
Do.	Zanzibar	3,798	5,351
Do.	Kenya Colony	384	640
Do.	Mauritius	100	125
Calicut	Muskat	515	55
Do.	O.N.S. Arabia	435	56
Chief Port	Iraq	60	50
Calicut	Turkey	325	49
Chief Port	Sierra Leone	259	200
Do.	Portuguese East Africa.	42	52
Do.	United States of America (A.C.)	300	600
	Total	36,713	58,270

From port.	To place.	Number of pairs.	Value in rupees.
1939–40—			
Chief Port	United Kingdom	791	1,021
Do.	Aden	11 443	19,610
Calicut	Maldives	36	36
Chief Port	Ceylon	666	1,675
Dhanushkodi	Do.	21,279	42,031
Tuticorin	Do.	1,725	1,133
Chief Port	Burma	5,797	9,705
Vizagapatam	Do.	100	150
Chief Port	Straits	530	852
Negapatam	Do.	3,285	3 927
Chief Port	F.M.S.	150	200
Negapatam	Do.	1,091	966
Chief Port	Sierra Leone	492	495
Do.	Zanzibar	910	1,440
Do.	Union of South Africa	1,452	1,940
Do.	Kenya Colony	24	100
Do.	Mauritius	357	300
Do.	Nigeria	258	400
Do.	Portuguese East Africa.	72	180
Do.	United States of America (A.C.)	318	572
	Total	50,776	86,733

From port.	To place.	Number of pairs.	Value in rupees.
1940-41—			
Chief Port	Aden	1,474	4,344
Calicut	Do.	72	40
Chief Port	Sierra Leone	12,778	16,377
Negapatam	Ceylon	187	184
Dhanushkodi	Do.	45,291	88 324
Tuticorin	Do.	1,287	1,050
Chief Port	Burma	13,340	32,935
Vizagapatam	Do.	400	400
Chief Port	Straits	777	1 542
Negapatam	Do.	5,908	8,169
Chief Port	Nigeria	2,870	3,473
Do.	F M.S.	40	65
Negapatam	Do.	1 616	1,681
Chief Port	Union of South Africa	372	525
Do.	Mauritius	1,099	1,205
Do.	Gold Coast	2,940	4 267
Do.	Zanbia	480	520
Do.	Kenya Colony	3 218	2 692
Do.	Maldireg	40	10
Do.	Zanzibar	318	185
Do.	Tanganiyaka	219	180
Do.	United States of America (A.C.)	4	15
Do.	O.N.S. Arabia	50	6
	Total	94,780	1,68,189

Boots and shoes rubb r soled with canvas upper.

From port.	To place.	Number of pairs.	Value in rupees.
1941-42—			
Cochin	Sierra Lenone	1,155	1,400
1941-42—			
Negapatam	Ceylon	57	62
Dhanushkodi	Do.	75,543	1,69,756
Tuticorin	Do.	753	644
Chief Port	Burma	9,097	21,443
Vizagapatam	Do.	630	1,315
Chief Port	Straits	2,759	2,458
Negapatam	Do.	7,274	10,654
Chief Port	F.M.S.	250	300
Negapatam	Do.	2,566	2,950
Chief Port	Kenya	5,172	4,242
Do.	Sierra Leone	10,546	10,857
Cochin	Do.	378	485
Chief Port	Nigeria	2,574	3,100
Do.	Tanganiyaka	3,760	3,182
Do.	Zanzibar	576	490
Do.	Mauritius	2,183	2,326
Do.	Portuguese East Africa.	288	236
Do,	Gold Coast	6,954	7,265
Calicut	Koweit	65	30
Chief Port	United States of America (A.C.)	600	600
	Total	132,025	2,42,395
1942-43—			
Dhanushkodi	Ceylon	19,595	49,698
Tuticorin	Do.	9,403	11,751
Chief Port	Mauritius	206	500
	Total	29,204	61,949

From port.	To place.	Number of pairs.	Value in rupees.
1943-44—			
Pamban	Ceylon	168	27
Dhanushkodi	Do.	15,591	40 406
Tuticorin	Do.	4,891	5,370
Do.	Mauritius	195	204
	Total	20,845	46,007
1944-45—			
Pamban	Ceylon	342	543
Dhanushkodi	Do.	11,020	25,562
Tuticorin	Do.	3,372	3,460
Chief Port	Nigeria	1,781	6,400
Do.	Mauritius	233	306
	Total	16,748	36,271
1945-46—			
Dhanushkodi	Ceylon	2,633	16,453
Tuticorin	Do.	1,542	2,874
Chief Port	Seirra Leone	30	99
Tuticorin	Mauritius	297	554
	Total	4,502	19,980
1946-47—			
Negapatam	Ceylon	125	63
Dhanushkodi	Do.	35,016	1,77,285
Tuticorin	Do.	6,185	34,664
Chief Port	Burma	108	720
Do.	Nigeria	360	2,124
	Total	41,794	2,14,856

Export of boots and shoes from Madras Presidency.
(Coastwiss.)

Year.	Number of pairs.	Value in rupees.
1932-33	2,590	3,841
1933-34	3,831	3,965
1934-35	2,000	1,975
1935-36	15,132	12,680
1936-37	5,841	5,871
1937-38	1,892	1,150
1938-39	1,955	1,600
1939-40	658	938

ANNEXURE 45.

Export of bags (leather), trunks, etc., from Madras Presidency.
(Sea borne.)

Year.	Value in rupees.	Year.	Value in rupees.
1937-38	267	1942-43	4,348
1938-39	111	1943-44	7,428
1939-40	164	1944-45	2,10 817
1940-41	Not available.	1945-46	31,276
1941-42	Do.	1946-47	1,20,576

ANNEXURE 46.

Export of leather manufactures, other sorts from Madras Presidency.

From port.	To place.	Weight.	Value in rupees.
1936-37	Nil.		
1937-38—			
Chief Port	United Kingdom ..	..	65
Cochin	Do. ..	..	20
Chief Port	Burma	..	37,428
Do.	Ceylon	..	3,741
Dhanushkodi	Do.	..	4,006
Chief Port	Straits	..	9,895
Do.	Syria	..	1,600
Do.	F.M.S.	..	25
Do.	Zanzibar	..	128
Do.	Kenya	..	11,330
Do.	Belgium	..	2,450
Do.	Union of South Africa ..	..	1,000
Do.	Iraq	..	400
Do.	Netherlands	..	350
Do.	Turkey (Asiatic) ..	..	5,576
	Total ..	..	78,102
1938-39—			
Chief Port	United Kingdom ..	..	15,830
Do.	Ceylon	..	2,700
Do.	Straits	..	8,302
Dhanushkodi	Ceylon	..	3,064
Tuticorin	Do.	..	1,308
Chief Port	Union of South Africa ..	..	600
Do.	Zanzibar	..	50
Do.	Kenya	..	11,050
Do.	Turkey (Asiatic) ..	..	2,200
Do.	Iraq	..	27,573
	Total ..	..	94,389
1939-40—			
Chief Port	United Kingdom ..	..	1,000
Do.	Cyprus	..	355
Do.	Ceylon	..	450
Do.	Straits	..	2,347
Dhanushkodi	Ceylon	..	8,227
Chief Port	Zanzibar	..	750
Negapatam	Straits	..	2
Do.	F.M.S.	..	168
Chief Port	Kenya Colony	..	11,730
Do.	Sierra Leone	..	1,830
Do.	Nigeria	..	70
Do.	Iraq	..	11,500
	Total ..	..	95,302

From port.	To place.	Weight.	Value in rupees.
1940-41	Nil.		
1941-42—			
Chief Port ..	Ceylon ..	..	68
Dhanushkodi	Do. ..	..	20,314
Chief Port ..	S.S.	..	11,552
Do.	F.M.S. ..	..	300
Do.	Kenya Colony	..	9,001
Do.	Burma ..	..	40,382
Do.	Tanganyka Territory ..	..	1,250
Do.	Mauritius	..	1,400
Tuticorin ..	Do.	..	165
Chief Port ..	Portuguese East Africa	..	20
	Total ..	..	74,452
1942-43—			
Dhanushkodi	Ceylon ..	..	32,934
Tuticorin ..	Do. ..	..	66
	Total ..	..	33,000
1943-44—			
Pamban ..	Ceylon ..	..	1,750
Dhanushkodi	Do. ..	..	6,676
Tuticorin ..	Do. ..	..	66
	Total ..	..	8,492
1944-45—			
Chief Port ..	Ceylon ..	..	20,286
Dhnushkodi	Do. ..	..	45,955
Tuticorin ..	Do. ..	..	10,878
	Total ..	..	77,119
1945-46—			
Chief Port ..	Ceylon ..	..	17 893
Dhanushkodi	Do. ..	..	88,265
Tuticorin ..	Do. ..	..	41,138
Chief Port ..	Sierra Leone ..	..	86
Vizagapatam	United Kingdom	..	100
	Total ..	..	1,47,482
1946-47—			
Chief Port ..	Ceylon ..	..	23,055
Dhanushkodi	Do. ..	..	47,780
Tuticorin ..	Do. ..	..	22,442
Chief Port ..	Burma ..	..	1,70,145
Do.	Straits ..	..	30,607
Do.	Kenya ..	..	38,507
Do.	United States of America (A.C.)	..	3,000
Do.	Egypt ..	..	2,900
Do.	Nigeria ..	..	30,565
Do.	Sierra Leone ..	..	2 937
Do.	Mauritins and Dep. ..	..	3,875
Do.	Aden and Dep. ..	..	11,669
Cochin ..	Common wealth of Australia.	..	300
	Total ..	..	3,87,782

ANNEXURE 47.

Export of tanned unwrought from Madras Presidency.

From port.	To place.	Weight in cwts	Value in rupees.
1936–37—			
Chief Port	United Kingdom	11,665	30,05,550
Do.	Cyprus	53	7,595
Do.	Straits	19	4,640
Do.	Irish Free State	7	1,200
Do.	Union of South Africa ..	236	90,800
Do.	Kenya Colony	14	3,580
Do.	Malta	4	450
Do.	Commonwealth of Australia.	4	3,275
Do.	Canada (A.C.)	1	550
Do.	Palestine	2	300
Do.	France	5	3,780
Do.	Italy	7	4,880
Do.	Turkey (Asiatic)	6	2,575
Do.	Syria	5	2,000
Do.	Siam	1	200
Do.	Philippines	15	1,625
Do.	China	5	2,270
Do.	Sumatra	2	370
Do.	Egypt	2	1,150
Do.	Ceylon	150	33,931
Dhanushkodi ..	Do.	51	8,686
Tuticorin	Do.	5	467
	Total ..	12,259	31,79,934
1937–38—			
Chief Port	United Kingdom	8,670	32,39,648
Do.	Palestine	23	6,410
Do.	Ceylon	2	450
Dhanushkodi ..	Do.	49	9,619
Chief Port	Straits	35	11.704
Do.	Union of South Africa ..	355	1,67,781
Do.	Cyprus	54	13,460
Do.	Burma	1,202	96,409
Do.	Kenya	12	6,223
Do.	M.S.	1	408
Do.	New Zealand	1	300
Do.	Germany	1	295
Do.	Belgium	11	3,720
Cochin ..	Netherlands	1	30
Chief Port	Finland	2	1,470
Do.	Sweden	Lb. 56	156
Do.	Japan	1	1,200
Do.	Egypt	1	350
Do.	Philipines	6	700
Do.	Java	1	450
Do.	China	8	3,890
Do.	Siam	2	2,175
Do.	France	195	8,180
Do.	Dutch West Indies ..	3	1,100
Do.	United States of America (A.C.)	3	2,800
	Total ..	10,639	35,78,920

From port.	To place.	Weight in cwt.	Value in rupees.
1938–39—			
Chief Port	United Kingdom	5,478	21,09,152
Do.	Cyprus	87	26,175
Do.	Ceylon	8	488
Dhanushkodi	Do.	125	24,418
Chief Port	Burma	1,682	1,82,480
Do.	Straits	92	15,285
Do.	Union of South Africa	184	77,748
Do.	Zanzibar	7	199
Do.	Kwantung	16	4,215
Do.	Kenya	96	20,059
Do.	Netherlands	11	1,560
Do.	Turkey (Asiatic)	8	5,783
Do.	Iraq	153	9,425
Do.	China	3	1,150
Do.	Hongkong	1	235
Do.	Siam	4	850
Do.	Philipines	28	2,060
	Total	7,991	24,82,732
1939–40—			
Chief Port	United Kingdom	9,945	40,09,062
Do.	Cyprus	34	33,586
Do.	Palastine	1	330
Dhanushkodi	Ceylon	82	20,198
Tuticorin	Do.	58	684
Chief Port	Straits	119	26,575
Do.	Union of South Africa	486	3,31,135
Do.	Hongkong	1	360
Do.	Kenya Colony	111	57,853
Do.	Turkey (Asiatic)	2	1,200
Do.	New Zealand	3	850
Do.	French Indo-China	3	575
Do.	China	2	1.200
Do.	Iraq	172	14,110
Do.	Sumatra	79	11,310
Do.	Java	2	320
Do.	Siam	1	560
Do.	Philipines	11	2,950
Do.	U.S.A. (A.C.)	10	2,200
	Total	13,026	47,12,773
1940–41—			
Chief Port	United Kingdom	6,254	28,59,905
Do.	Cyprus	59	13,987
Do.	Ceylon	1	110
Dhanushkodi	Do.	34	10,438
Chief Port	Straits	111	26,220
Do.	Burma	1,777	2,01,125
Do.	Union of South Africa	305	1,98,015
Do.	Kenya Colony	222	65,734
Do.	New Zealand	2	1,518
Do.	Tanganiyaka Territory	9	850
Do.	Mauritius	22	2,134
Do.	French Indo-China	69	11,865
Do.	Thailand	1	400
Do.	Sumatra	1	850
Do.	China	14	5,969
Do.	Zanzibar	1	175
Do.	Iraq	55	7,332
Do.	Hongkong	6	3,500
Do.	U.S.A. (A.C.)	2	392
	Total	8,945	34,10,519

From port.	To place.	Weight in cwt.	Value in rupees.
1941–42—			
Chief Port ..	.. United Kingdom ..	2,233	10,93,868
Dhanushkodi	.. Ceylon	216	44,186
Tuticorin ..	.. Do.	2	509
Chief Port ..	.. Straits Settlements ..	59	25,195
Do. ..	.. Burma	1,229	1,41,612
Do. ..	.. Union of South Africa ..	906	5,96,651
Do. ..	.. Kenya Colony	310	1,10,068
Do. ..	.. New Zealand	8	6,412
Do. ..	.. Tanganiyaka	21	6,162
Do. ..	.. Mauritius	54	24,683
Do. ..	.. Hongkong	1	500
Do. ..	.. Thailand	4	4,150
Do. ..	.. Zanzibar and Pemba ..	1	504
Do. ..	.. Federated Malaya States ..	3	1,600
Do. ..	.. Rhodesia, Southern ..	4	2,000
	Total ..	5,051	20,58,100
1942–43—			
Chief Port ..	.. United Kingdom	2,582	13,23,478
Dhanushkodi.	.. Ceylon	91	21,058
Tuticorin ..	.. Do.	42	22,776
Chief Port ..	.. Iraq	72	45,000
Do. ..	.. Union of South Africa ..	431	1,67,558
Do. ..	.. Zanzibar and Pemba ..	183	1,07,103
	Total ..	3,401	16,86,973
1943–44—			
Chief Port ..	.. United Kingdom	3,099	15,29,073
Do. ..	.. Ceylon	6	4,589
Dhanushkodi.	.. Do.	176	98,872
Tuticorin ..	.. Do.	256	1,40,463
Chief Port ..	.. Union of South Africa ..	318	1,24,596
	Total ..	3,855	18,97,593
1944–45—			
Chief Port ..	.. United Kingdom ..	1,088	8,81,730
Dhanushkodi.	.. Ceylon	59	32,245
Tuticorin ..	.. Do.	63	23,659
Chief Port ..	.. Union of South Africa ..	919	3,60,226
Do. ..	.. Kenya Colony ..	2	2,500
	Total ..	2,131	13,00,360

From port.	To place.	Weight in cwt.	Value in rupees.
1945–46—			
Chief Port ..	.. United Kingdom	244	1,85,985
Tuticorin ..	.. Ceylon	15	8,922
Chief Port ..	.. Union of South Africa ..	71	2,14,722
	Total ..	330	4,09,629
1946–47—			
Chief Port ..	.. United Kingdom	1,319	11,86,612
Do. ..	.. Union of South Africa ..	76	95,740
Do. ..	.. Ceylon	44	37,509
Do. ..	.. Burma	245	1,22,217
Dhanushkodi.	.. Ceylon	172	1,33,337
Tuticorin ..	.. Do.	103	97,002
Chief Port ..	.. Kenya Colony	23	21,768
Do. ..	.. Denmark	369	7,44,056
Do. ..	.. Straits	42	23,293
Do. ..	.. Canada (A.C.)	1	1,484
Do. ..	.. U.S.A. (A.C.)	56	10,873
Do. ..	.. Cyprus	19	13,750
Do. ..	.. Palestine	10	9,875
Do. ..	.. Sweden	130	2,54,376
Do. ..	.. New Zealand	12	29,392
Do. ..	.. China	2	2,500
Do. ..	.. Switzerland	20	39,189
Do. ..	.. Iraq	40	57,840
Do. ..	.. Mauritius	6	5,005
Do. ..	.. Belgium	25	60,288
Do. ..	.. Egypt	80	84,875
Do. ..	.. Hongkong	13	25,971
Do. ..	.. Netherlands	42	1,02,891
	Total ..	2,850	31,60,648

N.B.—Leather unwrought consists of the following—

(1) All vegetable tanned leather produced from buffalo hides weighing in hides 14 lb. and over or in sides 7 lb. and over.

(2) All classes of vegetable tanned leather produced from cow hides kips weighing 8 lb. or over as hides and 4 lb. or over as sides other than E.I. kips.

(3) All chrome tanned upper leather produced from cow or buffalo hides and having a minimum substance of 1·5 m.m. and or a minimum of area of 11 square feet per half a hide (side) or 22 square feet per full hide.

(4) All unwrought leather from buffalo, cow or calf hide in the form of cut pieces or cut components (leather goods, semi manufactured).

ANNEXURE 48.

Statement showing the wholesale prices of tanned hides at Madras per pound (in rupees).

Tanned hides—Bangalore—8 to 8½ lb.

Month.	1939.	1940.	1941.	1942.	1943.	1944.	1945.	1946.	1947.
January	0·62	0·81	0·83	0·84	0·92	1·01	1·43	2·09	2·16
February	0·62	0·87	0·78	0·84	0·92	1·08	1·50	2·09	2·16
March	0·62	0·89	0·75	0·86	0·91	1·18	1·50	2·13	2·16
April	0·62	0·88	0·74	0·84	0·91	1·21	1·50	2·14	2·15
May	0·62	0·88	0·74	Nil	0.91	1·25	1·50	2·16	2·13
June	0·62	0·80	0·78	..	0·91	1·25	1·84	2·12	2·13
July	0·64	0·72	0·83	..	0·91	1·25	1·84	2·20	2·13
August	0·64	0·70	0·83	..	0·93	1·25	1·84	2·20	2·13
September	0·64	0·67	0 83	0·90	0·94	1·25	1·87	2·16	2·12
October	0·71	0·73	..	0·89	0·95	1·25	2·02	2·16	2·11
November	0·77	0·82	..	0·88	0·96	1·31	2·08	2·16	2·13
December	0·82	0·86	..	0·94	0·99	1·35	2·08	2·15	2·18

Tanned hides—Up countries.

January	0·60	0·80	0·81	0·81	0·91	0·98	1·33	1·96	2·09
February	0·61	0·86	0·73	0·81	0·91	1·03	1·41	1·94	2·09
March	0·60	0·87	0·72	0·83	0·89	1·13	1·47	2·00	2·09
April	0·60	0·86	0·73	0·82	0·89	1·16	1·47	2·13	2·09
May	0·62	0·86	0·73	..	0·89	1·00	1·47	2·13	2·06
June	0·60	0·80	0·76	..	0·89	1·21	1·78	2·03	2·06
July	0·62	0·72	0·79	..	0·89	1·20	1·78	2·17	2·06
August	0·62	0·69	0·78	..	0·86	1·20	1·70	2·17	2·06
September	0·63	0·65	0·80	0·89	0·89	1·19	1·74	2·10	2·06
October	0·70	0·71	0·86	0·89	0·93	1·17	1·89	2·09	2·06
November	0·76	0·80	0·89	0·87	0·95	1·23	1·96	2·08	2·06
December	0·81	0·83	0·87	0·92	0·97	1·26	2·00	2·08	2·11

Tanned hides—Coasts—7 to 7½ lb.

January	0·64	0·82	0·81	0·84	0·92	1·01	1·46	2·09	2·09
February	0·64	0·87	0·76	0·84	0·92	1·10	1·53	2·09	2·09
March	0·64	0·89	0·73	0·84	0·91	1·20	1·53	2·05	2·06
April	0·64	0·88	0·72	0·84	0·91	1·24	1·53	2·05	2·06
May	0·65	0·85	0·72	..	0·91	1·28	1·53	2·06	2·03
June	0·64	0·81	0·78	..	0·91	1·26	1·77	2·03	2·03
July	0·65	0·73	0·88	..	0·91	1·24	1·79	2·17	2·03
August	0·65	0·72	0·81	..	0·93	1·24	1·80	2·17	2·03
September	0·65	0·66	0·82	0·90	0·94	1·24	1·81	2·10	2·03
October	0·69	0·72	0·83	0·90	0·95	1·26	1·99	2·09	2·03
November	0·77	0·79	0·87	0·91	0·97	1·34	2·05	2·08	2·03
December	0·83	0·83	0·84	0·94	0·99	1·38	2·09	2·08	2·08

ANNEXURE 49.

Statement showing the wholesale price of tanned goat skins at Madras in rupees per pound.

Month.	1939.	1940.	1941.	1942.	1943.	1944.	1945.	1946.	1947.
					Tanned goat skins—Good.				
January	1·54	2·39	1·31	1·79	2·00	2·29	2·83	2·97	5·36
February	1·56	2·50	1·28	1·85	2·00	2.45	2·84	2·94	5·13
March	1·56	2·41	1·05	1·76	2·00	2·56	2·84	3·13	4·35
April	1·60	2·12	1·25	1·81	2·00	2·56	2·87	3·22	4·34
May	1·60	1·79	1·32	..	1·98	2·55	2·88	3·25	4·54
June	1·54	1·57	1·40	..	2·06	2·57	2·97	3·30	4·75
July	1.54	1·15	1·55	..	2·05	2·64	2·97	4·04	4·88
August	1·56	1·09	1.56	..	2·11	2·68	2·97	4·92	4·86
September	1·52	1·00	1·56	1·84	2·21	2·79	2·88	4·94	4·65
October	1·92	1·03	1·83	1·86	2·20	2·66	2·84	5·56	4·66
November	2·48	1·14	2·09	2·07	2·25	2·84	3·00	5·98	5·42
December	2·36	1·17	1·87	2·16	2·28	2·82	3·02	5·81	5·81
					Tanned goat skins—Fair.				
January	1·43	2·16	1·22	1·66	1·81	2·10	2·70	2·74	5·16
February	1·48	2·38	1·29	1·75	1·81	2·24	2·69	2·69	4·82
March	1·47	2·23	0·96	1·58	1·81	2·41	2·80	2·93	4·14
April	1·48	1·98	1·16	1·69	1·81	2·45	2·81	3·15	4·12
May	1·47	1·63	1·23	..	1·84	2·47	2·86	3·25	4·37
June	1·46	1·44	1·26	..	1·88	2·53	2·84	3·33	4·48
July	1·44	1·05	1·37	..	1·91	2·59	2·80	3·86	4·50
August	1·44	1·03	1·38	..	1·97	2·61	2·79	4·65	4·60
September	1·42	0·94	1·38	1·80	2·08	2·66	2·70	4·63	4·43
October	1·69	0·93	1·61	1·81	2·07	2·59	2·66	5·01	4·33
November	2·13	1·06	1·88	1·89	2·08	2·71	2·77	5·44	4·74
December	2·06	1·10	1·69	2·03	2·09	2·72	2·79	5·37	4·94
					Tanned goat skins—Common.				
January	1·34	2·07	1·16	1·43	1·72	2·03	2·55	2·69	4·94
February	1·36	2·28	1·09	1·55	1·72	2·10	2·56	2·66	4·45
March	1·37	2·14	0·86	1·46	1·72	2·18	2·56	2·81	3·93
April	1·39	1·88	1·02	1·56	1·72	2·27	2.56	3·14	3·90
May	1·41	1·52	1·07	..	1·78	2·40	2·55	3·05	4·02
June	1·40	1·33	1·12	..	1·85	2·47	2·78	3·13	4·21
July	1·36	1·02	1·20	..	1·90	2·53	2·78	3·66	4·31
August	1·38	0·96	1·22	..	1·93	2·54	2·75	4·49	4·49
September	1·36	0·89	1·22	1·72	2·02	2·55	2·66	4·50	4·31
October	1·62	0·92	1·38	1·71	2·03	2·54	2·63	4·69	4·26
November	2·01	1·01	1·66	1·77	2·03	2·56	2·73	4·88	4·61
December	2·20	1·06	1·44	1·89	2·03	2·52	2·70	5·03	4·81

ANNEXURE 50.

Statement showing the wholesale price of tanned sheep skins at Madras in rupees per pound.

Month.	1939.	1940.	1941.	1942.	1943.	1944.	1945.	1946.	1947.
	Years.								
Tanned sheep skins—Good.									
January	1·44	2·39	1·34	1·35	1·81	2·34	2·52	4·04	6·38
February	1·43	2·54	1·28	1·34	1·90	2·52	3·53	3·88	6·35
March	1·37	2·32	1·09	1·33	2·02	2·69	3·65	3·92	5·45
April	1·45	2·08	1·21	1·24	2·06	2·62	3·68	4·17	5·25
May	1·45	1·69	1·25	..	2·06	2·81	3·69	4·05	5·30
June	1·45	1·52	1·29	..	2·25	3·20	3·88	5·54	5·88
July	1·47	1·16	1·44	..	2·24	3·35	4·07	6·40	5·14
August	1·44	1·09	1·41	..	2·24	3·56	4·06	6·54	6·68
September	1·47	1·05	1·31	1·78	2·31	3·62	3·85	6·50	6·48
October	1·89	1·06	1·49	1·75	2·39	3·56	3·74	6·67	6·22
November	2·51	1·21	1·56	1·82	2·33	3·56	3·82	6·86	6·59
December	2·41	1·26	1·42	2·03	2·34	3·51	3·87	6·83	6·69
Tanned sheep skins—Fair.									
January	1·28	2·13	1·22	1·18	1·67	2·13	3·18	3·82	6·13
February	1·28	2·25	1·16	1·27	1·78	2·32	3·19	3·69	6·01
March	1·25	2·08	1·00	1·21	1·90	2·50	3·31	3·71	5·37
April	1·31	1·88	1·10	1·16	1·91	2·42	3·46	3·83	4·63
May	1·34	1·67	1·16	..	1·91	2·62	3·50	3·83	4·64
June	1·34	1·34	1·21	..	2·06	2·95	3·72	5·22	5·26
July	1·36	1·06	1·34	..	2·07	3·06	3·80	5·97	5·47
August	1·34	1·03	1·30	..	2·08	3·32	3·82	5·96	5·91
September	1·36	0·98	1·19	1·72	2·16	3·40	3·73	4·88	5·84
October	1·74	0·96	1·34	1·72	2·25	3·23	3·68	5·88	5·60
November	2·17	1·08	1·31	1·72	2·11	3·19	3·75	6·13	6·31
December	2·12	1·13	1·19	1·85	2·13	3·17	3·71	6·38	6·41
Tanned sheep skins—Common.									
January	1·18	1·96	1·16	1·11	1·56	2·00	2·86	3·62	5·86
February	1·16	2·12	1·09	1·21	1·49	2·13	2·88	3·53	5·63
March	1·10	1·84	0·94	1·12	1·58	2·25	3·06	3·59	4·84
April	1·10	1·56	1·00	1·09	1·59	2·29	3·16	3·81	4·25
May	1·34	1·31	1·03	..	1·69	2·48	3·19	3·81	4·26
June	1·21	1·19	1·05	..	1·88	2·82	3·44	4·90	4·88
July	1·20	0·94	1·13	..	1·96	2·94	3·63	5·63	5·13
August	1·16	0·90	1·11	..	1·99	2·85	3·70	5·70	5·57
September	1·18	0·92	1·06	1·59	2·04	2·77	3·54	4·50	5·43
October	1·67	0·90	1·21	1·55	2·02	2·58	3·29	..	5·13
November	1·99	0·98	1·22	1·57	1·99	2·61	3·31	..	6·14
December	1·94	1·06	1·13	1·66	2·00	2·74	3·24	5·81	6·16

ANNEXURE 51.

Export of raw cutting of hides and skins from Madras Presidency.

From Port.	To place.	Weight. TONS.	Value. RS.
1936–37—			
Chief Port	United Kingdom	1,050	1,32,595
Kakinada	Do.	109	11,181
Tuticorin	Ceylon	25	4,905
Chief Port	Germany	1,045	96,254
Vizagapatnam	Do.	83	4,360
Kakinada	Do.	430	39,848
Chief Port	Sweden	17	830
Do.	Netherlands	312	43,757
Kakinada	Do.	33	3,165
Kozhikode	Do.	3	909
Chief Port	Belgium	197	28,645
Do.	United States of America (A.C.)	48	4,800
Do.	United States of America (P.C.)	1,702	2,86,266
	Total	5,108	6,62,948
1937–38—			
Chief Port	United Kingdom	1.333	1,61,531
Kakinada	Do.	416	52,010
Tuticorin	Do.	9	1,512
Chief Port	Italy	cwts. 1	125
Cochin	Do.	" 7	185
Chief Port	Burma	" 9	50
Do.	Germany	1,359	1,63,587
Kakinada	Do.	96	12,636
Tuticorin	Do.	132	32,267
Chief Port	France	1	135
Do.	Netherlands	1,507	1,74,966
Kakinada	Do.	134	19,355
Chief Port	Japan	6	600
Do.	United States of America (A.C.)	83	11,710
Tuticorin	United States of America (A.C.)	23	4,635
Chief Port	United States of America (P.C.)	237	40,354
Kakinada	United States of America (P.C.)	91	11,377
Chief Port	Belgium	342	46,058
Kakinada	Do.	28	4,680
	Total	5,798	7,37,773
1938–39—			
Chief Port	United Kingdom	1,591	1,61,239
Vizagapatam	Do.	160	25,160
Kakinada	Do.	421	29,509
Chief Port	Burma	2	150
Do.	Commonwealth of Australia.	5	400
Do.	Germany	283	27,740
Do.	Netherlands	10	1,200
Do.	Belgium	10	1,127
	Total	2,482	2,46,525

From Port.	To place.	Weight.	Value.
		TONS.	RS.
1939-40—			
Chief Port	United Kingdom	2,125	1,95,624
Vizagapatnam	Do.	37	7,640
Kakinada	Do.	197	12,478
Chief Port	Burma	3	3,410
Do.	Netherlands	10	1,000
Do.	Straits	1	60
	Total	2,369	2,20,212
1940-41—			
Chief Port	United Kingdom	1,724	1,62,416
Vizagapatnam	Do.	294	35,975
Kakinada	Do.	673	67,075
Dhanushkodi	Ceylon	cwts. 4	192
Tuticorin	Do.	,, 6	530
Chief Port	Burma	,, 6	4,430
Do.	United States of America (A.C.)	1,466	2,18,257
Kakinada	United States of America (A.C.)	31	3,098
	Total	4,194	4,91,973
1941-42—			
Chief Port	United Kingdom	2,143	2,06,073
Vizagapatnam	Do.	237	28,584
Kakinada	Do.	434	39,928
Tuticorin	Ceylon	1	799
Chief Port	Burma	12	10,414
	Total	2,827	2,85,798
1942-43—			
Chief Port	United Kingdom	2,631	2,64,133
Vizagapatnam	Do.	593	93,397
Kakinada	Do.	242	25,594
	Total	3,466	3,83,124
1943-44—			
Chief Port	United Kingdom	1,483	2,43,664
Vizagapatnam	Do.	452	72,823
Do.	United States of America (A.C.)	11	2,250
Cochin	United States of America (A.C.)	6	1,543
	Total	1,952	3,20,280
1944-45—			
Chief Port	United Kingdom	1,225	3,17,634
Vizagapatnam	Do.	150	25,608
	Total	1,375	3,43,242
1946-47—			
Chief Port	United Kingdom	1,674	2,86,353
Vizagapatnam	Do.	181	34,617
Kakinada	Do.	220	33,900
Chief Port	Denmark	55	14,546
Do.	Belgium	19	5,350
	Total	2,149	3,74,766

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